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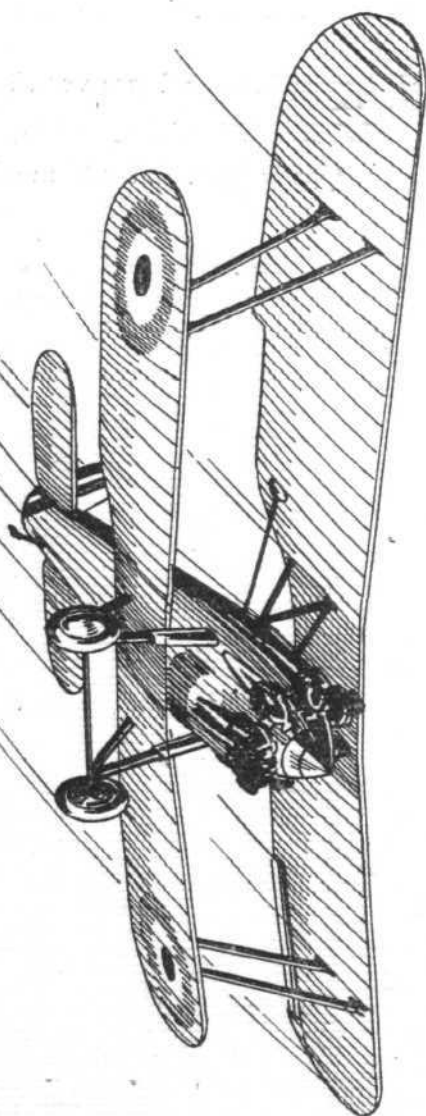
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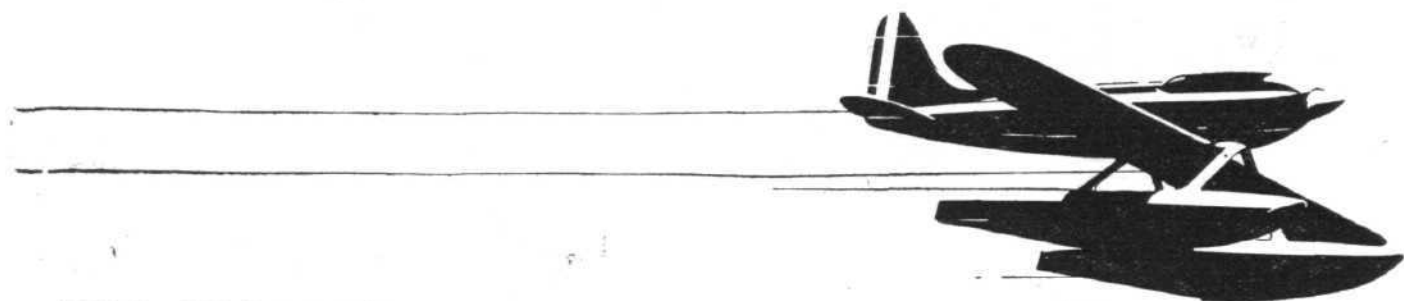
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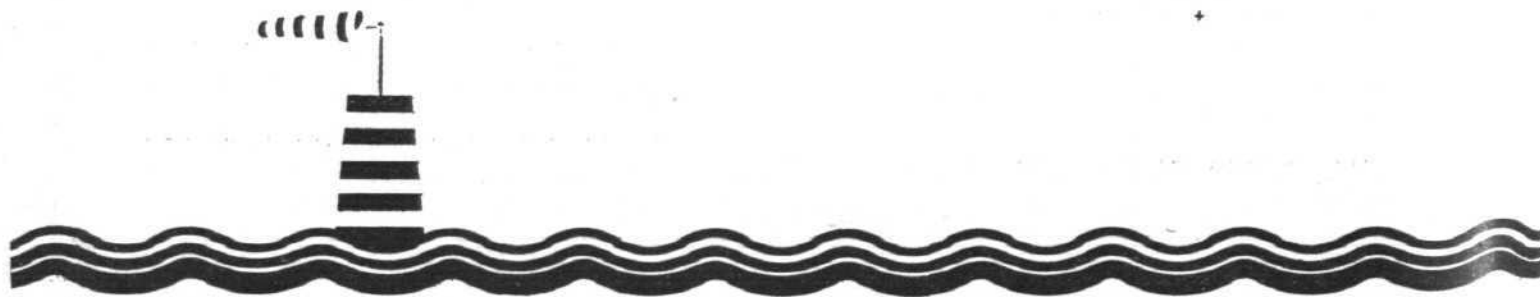
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OCTOBER 4, 1929

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## DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1929.	
Oct. 5	.... Newcastle Air Pageant, Cramlington Aerodrome.
Oct. 9	.... Lecture, "Progress in Civil Aviation," by Air Vice-Marshal Sir Sefton Brancker, before Royal United Service Institution.
Oct. 10	.... Air Pageant and Light 'Plane Race, Hull Municipal Aerodrome.
Oct. 10	.... Lecture, "The Range of Aircraft," by Mr. C. R. Fairey, before R.Ae.S. and Inst. Ae.E.
Oct. 24	.... Lecture, "The Art of Flying Land and Sea Machines," by Capt. N. Macmillan, before R.Ae.S. and Inst.Ae.E.
Oct. 31	.... Guggenheim Safe-Aircraft Competition Closes.
Nov. 7	.... Lecture, "Recent Developments of Fuels and Dopes for Aircraft Engines," by Dr. A. E. Dunstan, before R.Ae.S. and Inst. Ae.E.
Nov. 21	.... Lecture, "The Inspection of Materials," by Mr. L. W. Johnson, before R.Ae.S. and Inst.Ae.E.
Nov. 28	.... Lecture, "Flying and Maintenance from the Owner's Point of View," by Sq.-Ldr. H. M. Probyn, before R.Ae.S. and Inst. Ae.E.
Dec. 5	.... Lecture, "Recent Work on the Autogiro," by Sear. J. de la Cierva, before R.Ae.S. and Inst.Ae.E.

## EDITORIAL COMMENT



HERE are two outstanding items of interest in the review of the year's trading of Imperial Airways, Ltd., by the chairman, Sir Eric Geddes, at the annual meeting held on September 25. During the year the machines of the company have flown nearly twice as many miles as is necessary merely to earn the subsidy; and the insurance of Imperial Airways aircraft corresponds to an insurance rate of but slightly over 3 per cent. on the cost value of the aircraft. Sir Eric's speech contained many other references that were interesting and illuminating, but those two are, we think, of very special significance.

It will be recollected that by the terms of agreement with the Government, Imperial Airways, Ltd., must, in order to collect the subsidy, fly a certain specified number of miles in each year that comes within the period of the agreement. Originally machine-miles were used as a basis for computing the annual mileage, but some years ago this basis was changed to one of "horse-power miles," presumably with the idea of encouraging the use of larger and more powerful machines. It is assumed that Sir Eric's mention of increased mileage refers to the horse-power mileage. The actual figure given by Sir Eric is 94 per cent. more than the minimum required. This was on the European sections only. In Palestine and Iraq, Sir Eric stated, 12,500 non-subsidised miles were flown, as compared with 6,700 miles the previous year. It is not quite clear whether the figure referring to the Near East is one of "machine miles" or "horse-power miles," but in any case this matters relatively little, the main thing to note being that a good deal of flying over and above the minimum required has been done. This would scarcely have been the case unless such flying could show, at any rate, a gross profit. It is not to be assumed, of course, that the 94 per cent. extra service in Europe, and the 12,500 miles in the Near East would necessarily

be able to pay a net profit, but the fact that extra flights on the existing subsidy basis were worth while seems to indicate that we are now beginning to get towards the stage when aviation can, as Mr. Churchill put it, "fly by itself." It is to be hoped that next year Sir Eric will be able to state that the extra mileage can be flown at a net profit.

The statement that the portion of the moneys paid to aviation and general insurance which relates to the insurance of aircraft amounts to a premium of slightly over 3 per cent. of the cost value should serve to convince those who still believe that flying on organised air routes is a risky business. Indeed, it would be difficult to imagine better proof of the safety which Imperial Airways have achieved. Insurance people are not in business for the fun of it, and they would certainly not give cover for such a low figure unless they regarded the chances of damage to machines as being very remote. It should be remembered that the insurance companies must cover types of damage to aircraft which do not necessarily result in injury to passengers, and thus, in addition to the proof of absence of material damage to aircraft, this low insurance rate reflects in a most convincing manner the relative immunity from injury to passengers which Imperial Airways have enjoyed. Commercial aviation will not be really commercial unless and until the financial aspects are satisfactory, and safety is one of the first conditions for that state to come about. That 3 per cent. premium is, to our way of thinking, one of the most encouraging signs of progress which one could possibly have.

Next in importance to safety comes the question of regularity. Concerning this Sir Eric Geddes also had something to say. For instance, he stated that whereas in the first year of operation 75 per cent. of scheduled flights were completed, in this—the fifth year—the percentage had increased to 93.5 per cent. This figure is an average covering all scheduled flights. On the European sections the regularity was 92.85 per cent. In the Near East the company came very close to attaining 100 per cent. regularity, the figure for the year being

99.37 per cent. Sir Eric explained that they lost their goal of 100 per cent. because severe dust storms prevented flying on certain sections on three occasions.

Concerning the fleet of aircraft owned by Imperial Airways, Ltd., Sir Eric Geddes did not specifically mention types, but from his statement that an item of £64,000 for progress payment on aircraft under construction was for one new flying-boat, and the remainder for machines now in use on the European services, one may deduce the fact that the flying-boat referred to is the Short "Calcutta," while the other units are presumably the new Armstrong-Whitworth "Argosies." The reference of Sir Eric Geddes to the ordering of eight 2,000 h.p. 40-passenger machines is obviously to the new Handley Page four-engined machines, the cabin of one of which was exhibited at Olympia. These machines, Sir Eric stated, are to be used partly on the European and partly on the Indian sections of the air routes.

Future extensions of the present air services were foreshadowed by Sir Eric Geddes, who stated that the negotiations with the Indian Government were inconclusive as regards a permanent service, but that they had offered to charter to the Indian Government machines for a service between Karachi and Delhi, and possibly on to Calcutta on a temporary basis for a period of two years. They hoped this offer would be of service while the Indian Government was shaping its civil aviation policy.

Concerning the Egypt-South Africa extension Sir Eric said that they hoped to have the northern section—from Egypt to Lake Victoria Nyanza—in operation by about this time next year, and the southern section about six months later.

In spite of a note of slight dissatisfaction introduced by Sir Eric Geddes when referring to the slow increase in the use of the air mail, and to the somewhat disproportionately large percentage of the air mail fees retained by the Post Office, the general tone of the report is sanely optimistic, and, we think, justifiably so. A report of Sir Eric's speech is given on page 1081.



#### Schneider Trophy Contest Fund

THE Royal Aero Club have received, for the above fund, the following contributions, up to September 19.

Sir Charles C. Wakefield, Bart., £5,000; Hon. A. E. Guinness, £250; Southern Railway Co., £105; Mr. H. Gordon Selfridge, £52 10s.; Celion (Richmond) Ltd., Mr. A. K. Macomber, Colonel B. S. Millard, and Dunlop Rubber Co. Ltd., £50 each; Richard A. Cooper, £26 5s.; Tecalemit, Ltd., and Palmer Tyre, Ltd., £25 each; Shell-Mex, Ltd., British Petroleum Co., Ltd., Anglo-American Oil Co., Ltd., Hon. Henry Mond, Mr. F. G. T. Dawson, Mr. M. S. Napier, and Major Maurice Pope, £20 each; Lairdways, Ltd., £15; Mr. E. Owers, Capt. G. de Havilland, Sir Warden Chilcott, Llewellyn Ryland, Ltd., and Mr. C. Oswald Liddell, £10 10s. each; His Grace the Duke of Sutherland, Sir W. T. Dupree, Bart., and Samuel Turner, Esq. J.P., £10 each; Lieut.-Col. Sir John Humphery, Mr. J. J. Morgan, Mr. Stanley Spooner, Squadron-Leader A. Kubita, Sir Charles Allom, Mr. W. R. Steinway, Sir Thomas Lipton, Mr. F. W. Gamwell, and Mr. C. F. Chance, £5 5s. each; Mr. William Leuchars, Mrs. V. Dunville, Sir Ernest Roney, Mr. W. C. Gordon Black, and Mr. W. D. Clark, £5 each; Mr. G. D. Lock, £4 4s.; Mr. W. H. Dyke Acland, Thos. Firth & Sons, Ltd., Splintex Safety Glass, Ltd., Mr. H. Vincent, Mr. J. Maughfing, and Auto-Auctions, Ltd., £3 3s. each; Mr. A. Sevastopulo and Sir John C. E. Shelley-Rolls, Bart., £3 each; Mr. John E. Humphery, Mr. H. J. Preston, Mr. O. S. Baker, Major H. A. Petre, Mr. W. D. Cutler, Mr. M. R. N. Jennings, Mr. W. R. Ponting, Mr. C. W. Berry, Mr. H. R. Miller, Mr. R. L. Dunville, Mr.

J. E. Chorlton, Mr. C. Sutro, and Major G. F. Woods-Humphery, £2 2s. each; Sir B. Dawson, Mr. C. Gray Hill, Mr. F. Bellamy, Mr. A. J. Ellis, Mr. M. H. Volk, Miss W. L. Lockyer, Capt. C. B. Bond, Capt. A. G. Lamplugh, Mr. L. A. Wingfield, Squadron-Leader H. Probyn, Mr. G. H. Cuthbert Gundry, Mr. G. T. Legg, Major J. Upton Kelly, Mr. F. Barker, Flying Officer E. V. Lacey, Mr. M. Ellis, Mr. S. Gestetner, East Surrey Traction Co. Ltd., and Flt.-Lieut. J. B. H. Rogers, £1 1s. each; Mr. F. E. Le Sonef Simpson, £1; Mr. Blott, 11s. 6d.; Mr. A. S. Goodwin, 10s. 6d.; Mr. E. Newgass, 10s.

#### The late James Winter Fund

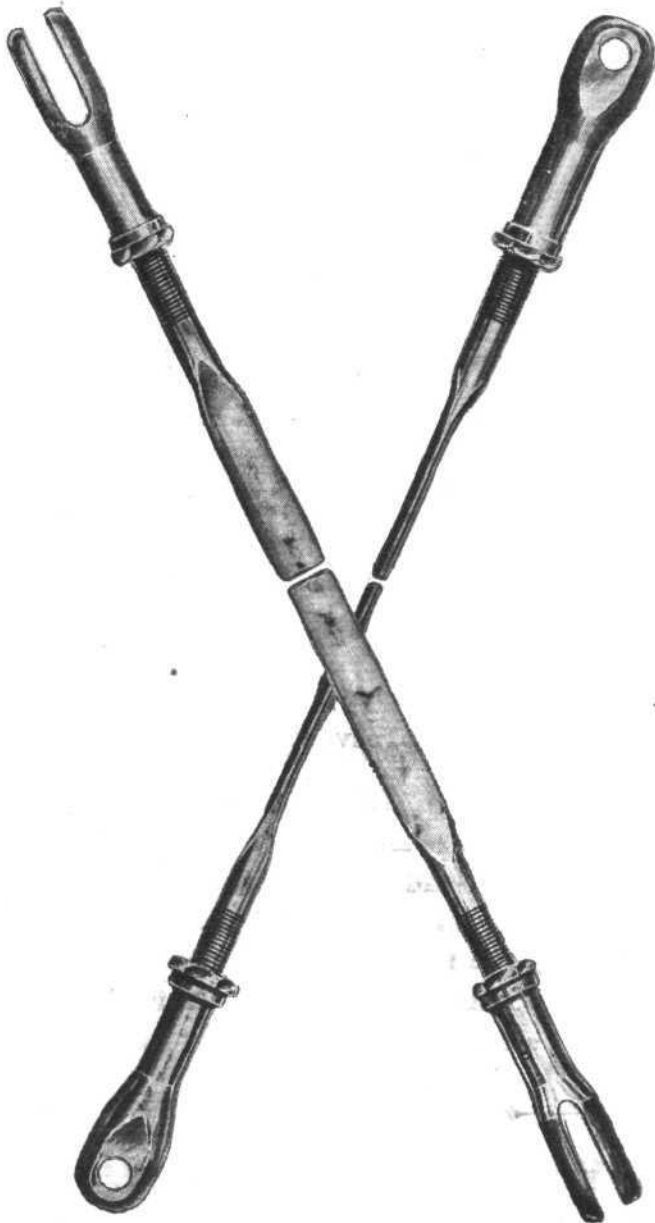
THIS fund was organised in order to assist the widow of the late James Winter (better known as "Old Jim"), who was a rigger at the R.A.E. at the time of his death in April last. He had been connected with aviation since 1905, and was well known and respected by many of the pioneers of civil and military aeronautics. The amount realised was £28 11s.; this has been handed over to the widow with a list of donors' names. Mrs. Winter wishes to convey to the contributors to this fund her grateful thanks for their sympathy and help.

#### Sir Philip Sassoon's Air Command

SIR PHILIP SASSOON, M.P. for Hythe, who was Under-Secretary of State for Air in the Conservative Government has been (on Oct. 1) gazetted Squadron Leader, to command No. 601 County of London (Bomber) Squadron.



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Extract from Melbourne Evening Paper, 20.8.29.

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Extract from Capt. The Hon. H. Grosvenor's letter:—

"By the way, I had my CIRRUS II down the other day for the first time since its trip round Australia, since when it has had a fair amount of work, and we were amazed at its condition. The Bearings are still almost on the tight side and impossible to touch, and bar a few Rocker Arm Bushes, it is as good as new. I will in all probability fit new Rings though."

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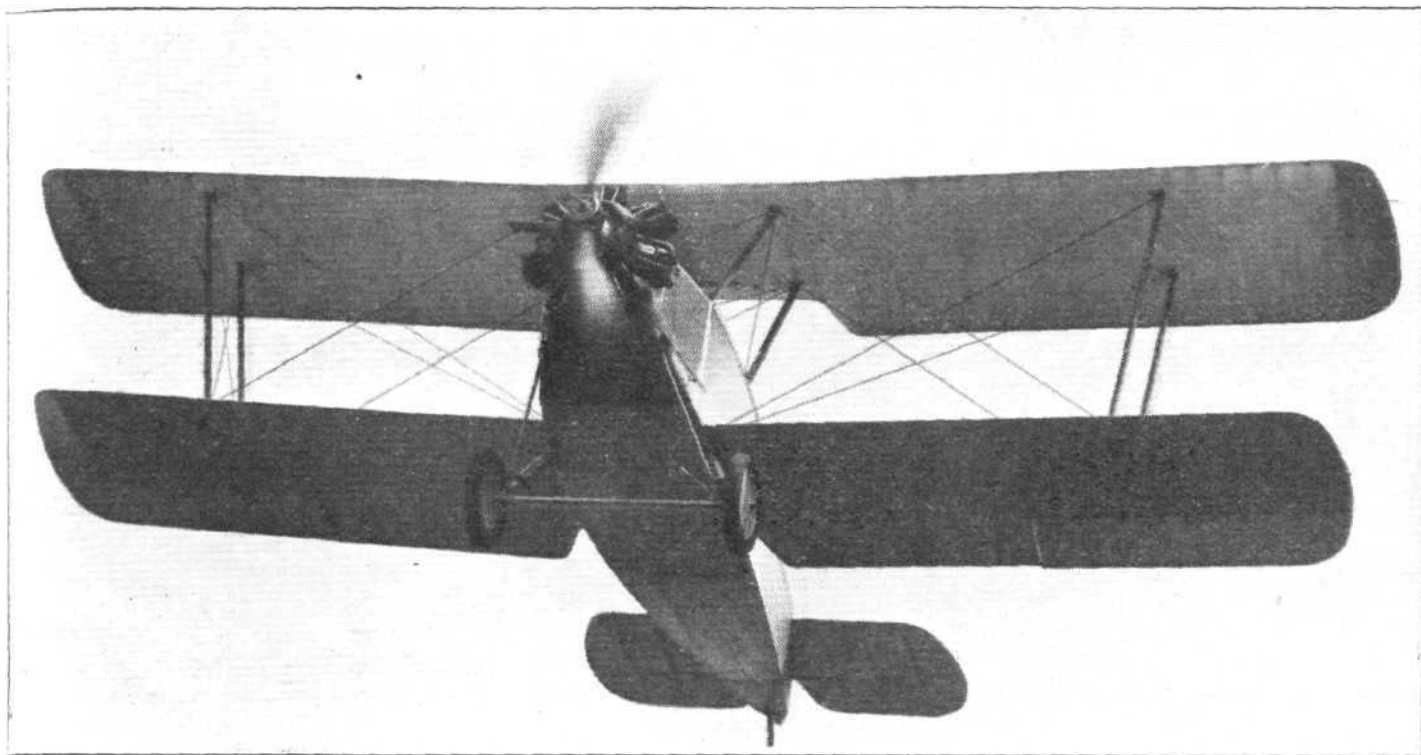
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The useful load allowance, with aerobatic C. of A., besides fuel and oil for 200 miles, is 400 lbs. This can be made up with pilot, passenger and/or goods or luggage. For touring, this gives an allowance of 60 lbs. of luggage with pilot and passenger; or, as a single seater, 230 lbs. of freight.

The machine may be fitted with either the 7 cyl., 95 h.p. Salmson air-cooled radial engine, or with the Cirrus air-cooled 4-cyl. in-line engine.

Specification of the machine is as follows:—Span, 28 ft. 9 in. Length, 20 ft. Height, 8 ft. 6 in. Wing area, 215 sq. ft. Weight empty, 680 lbs., load (total for aerobatic C. of A.), 520 lbs. Weight loaded, 1,200 lbs.

	With Salmson engine.	With Cirrus engine.
Top speed, fully loaded ..	110 m.p.h.	100 m.p.h.
Landing speed, fully loaded	45 "	45 "
Cruising speed, fully loaded	100 "	90 "
Rate of climb, low down ..	1,100 ft./mins.	800 ft./mins.
Ceiling .. ..	20,000 ft.	17,000 ft.
Range .. ..	200 miles	200 miles.

### Accommodation

The cockpit is roomy and comfortable. It is completely floored, while the sides are panelled and upholstered so that no bracing or other structure is exposed. Side-by-side seating has a dividing armrest extending the full length of the cockpit. Properly sprung thick upholstery is supplied, making the seating as comfortable as in a motor car.

Cushions of both seats can be lifted to expose a well under each, which can be used either as a tool box or as space for a seat-type parachute. In the latter case, the cushion is dispensed with; as the well depth plus the cushion thickness is the same as the thickness of a parachute.

### Luggage Space

Behind the cockpit is a large compartment, entirely floored and panelled, for luggage. It is 25 in. wide, with a mean length (fore and aft) and height of 18 in. and 30 in., respectively; having a capacity of 10 cub. ft. The opening to this compartment is at the top; and measures 35 in. by 12 in. It can be opened either half way or entirely, as the lid is hinged along the centre of the machine and is also entirely removable without tools.

It will thus be seen that two full-size suit-cases can easily be carried, in addition to quite a lot of other baggage.

### Controls

Full dual controls are provided, and these are so arranged that all control mechanism other than the actual joysticks and rudder-bars are out of the way, either below the floor or inside a tunnel which runs the whole length of the cockpit. This tunnel forms a waist-high partition, carrying an upholstered arm-rest and preventing the passenger from accidentally interfering with the pilot. The port joystick is quickly removable; and the rudder-bar on the same side can be instantly disconnected by the operation of a convenient lever. Thus accidental interference of the passenger with the controls can be absolutely avoided.

Accessibility of the control mechanism is nevertheless, good, as lids in the side of the tunnel and removable floor boards enable it easily to be inspected and oiled.

### Engine Controls

These are situated in the centre of the machine just below the dashboard, so as to be convenient to either occupant of the cockpit.

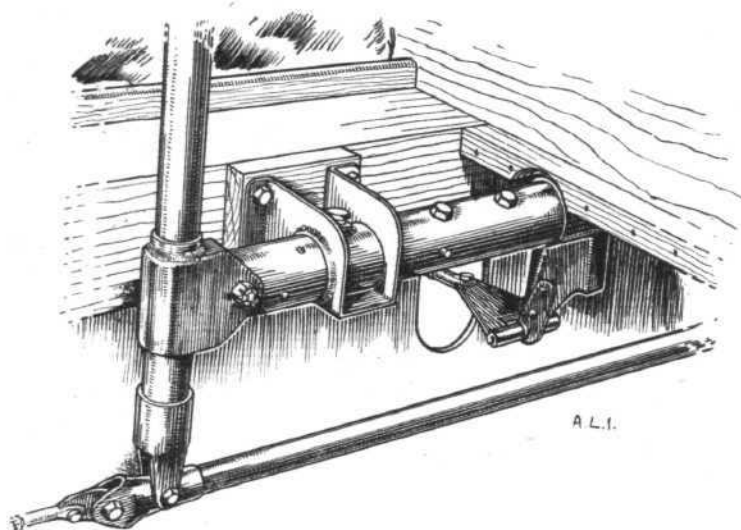
Throttle is controlled by a knob which moves straight fore and aft; an automatic device locking it positively in the desired position. The knob has a travel of 8 in., which gives a fine adjustment of throttle opening. A differential arrangement in the system also gives a finer adjustment at the beginning of the throttle opening than at the end. An altitude adjustment is by a smaller knob below the throttle control. These two controls are inter-connected forward of the fireproof bulkhead.

### Instrument Board

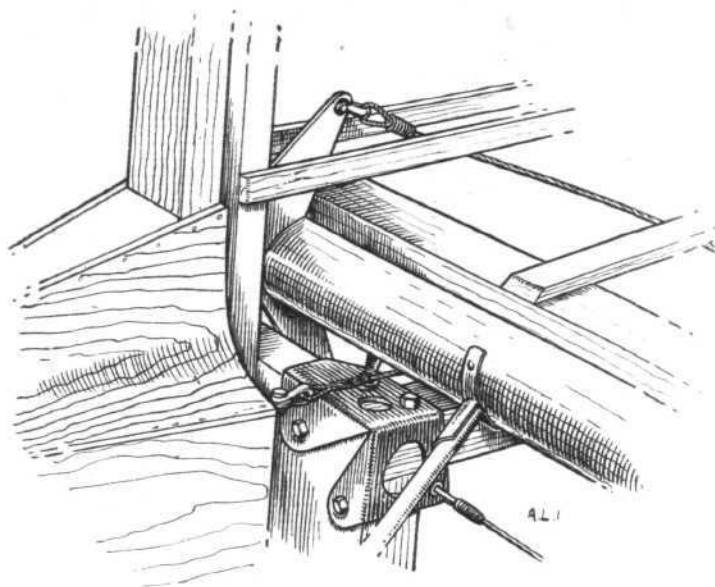
This is handsomely fitted out with flush instruments, and is covered with leather-cloth in keeping with the upholstery. There is a large cubby-hole at each side of the instrument board for light articles such as maps, gloves, sandwiches, etc.

### Fuselage

This is of the wire-braced type; with ash longerons and spruce struts. The fittings are all of an easily removable



Control column with rocking tube and inter-connecting rod to the second control column. ("FLIGHT" Sketch.)



Assembly at rear of fuselage showing rudder and elevator controls. ("FLIGHT" Sketch.)

type, and repairs in the event of damage are much easier than with a plywood fuselage. It is for this reason that this type of construction has been adopted in spite of its higher initial cost.

At the stern, the fuselage terminates in an almost square section thick plywood panel. This panel forms the fin-post attachment and the tail skid mounting; while the wide rear end gives a much better base for the tail plane attachment than the conventional knife edge.

At the forward end, the lower longerons extend one bay farther than the top ones.

These extremities of the top and bottom longerons on each side are joined by a steel tubular tie member, inclined in side view. The extreme forward top and bottom cross-struts are steel tube, each having inside it a tie rod with nuts outside the longerons.

The front longeron fittings are of channel section, and have large diameter holes to take bolts attaching the engine mounting. At that part of the fuselage where the bottom spars are attached, deep box section cross-members form bearers for the seats and floor, and carry the control bearings and wing attachment fittings.

#### Engine Mounting

The engine mounting for the Salmson engine comprises a steel plate of unusual design, having a large circular hole to fit the spigot on the engine, and bolt holes to suit. The plate is of conical form, with two legs extending down and back to the ends of the bottom longerons, where they engage with suitable fittings. The upper part extends only a small distance above the engine bolts, and is held by two tubular members attached at the centre line, and diverging as they extend back to the top longeron fittings.

A resulting three-point attachment of the plate is extremely simple and rigid, while it affords the maximum accessibility.

Cowling is so designed as to retain this accessibility to the full. Behind the engine plate it takes the form of hinged bonnets, instantly opened by hand. Each entire side hinges at the bottom, while the top is divided into halves which hinge upwards on the centre line. An undershield remains in position unless actual dismantling of the carburettor is necessary, when it is easily unbolted. Although the engine is a radial air-cooled one, a bulkhead just behind the cylinders entirely closes the front of the bonnet, keeping rain out of the region occupied by the magnetos, etc.

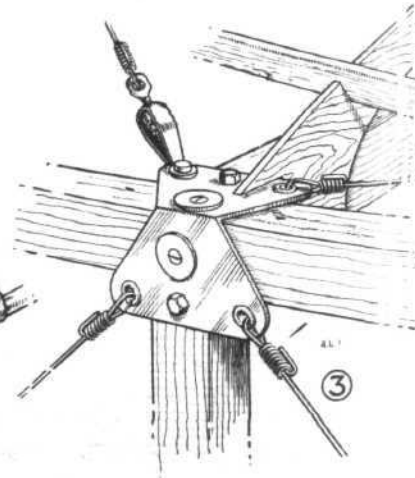
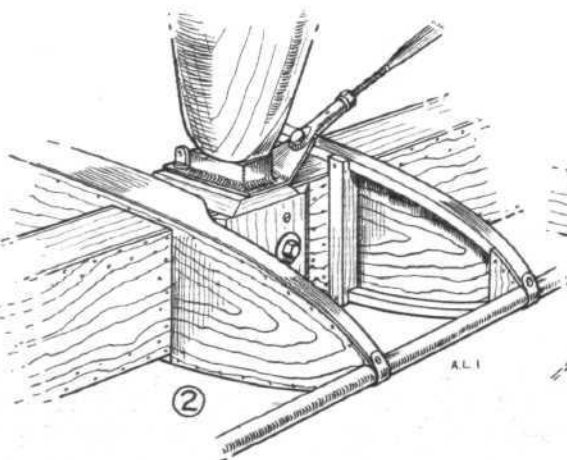
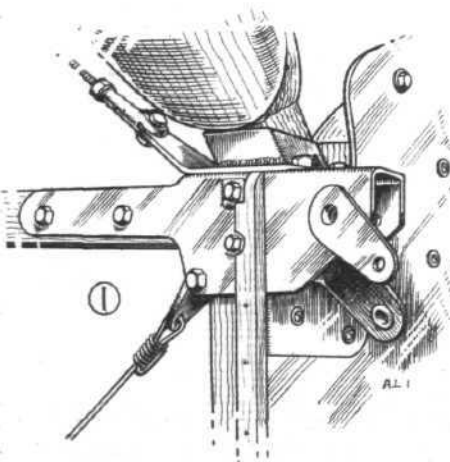
A fireproof bulkhead closes the back of the cowling. It is built up of two metal sheets with asbestos between, and extends actually to the extreme outside of the machine in all directions. The lacing eyelets for the fuselage fabric covering are carried on a flange turned back from the front plate of the bulkhead. This flange also forms a seating for the cowling. Engine controls, etc., pass through properly-fitting metal bushes in this bulkhead.

The entire mounting and cowling of the Salmson engine can be replaced by a set for the Cirrus engine by undoing four bolts only, one at each corner of the fuselage. The Cirrus mounting is of steel tube, having triangular side frames and horizontal bearer tubes.

As in the case of the Salmson, the cowling, which gives the same degree of accessibility, seats down at the rear, on to the flanges of the fireproof bulkhead, which is of course common to both engines.

#### Petrol System

The petrol tank is mounted in the top centre section of the main planes, and it is made of tinned steel of stout gauge.



TYPICAL JOINTS ON THE SURREY A.L.I.: 1, Front fuselage joint with centre section strut socket and engine-mounting attachment; 2, Strut fitting on the main 'plane spar; 3, A fuselage joint, which is clearly of simple design. ("FLIGHT" Sketches.)



The reliability and efficiency of the Napier engine has been proved not only on actual service, but on the following unequalled flights by the Royal Air Force :—

The greatest formation flight ever carried out was achieved by four Royal Air Force Supermarine "Southampton" flying boats, each fitted with two NAPIER engines, which flew from England to Australia and back to Singapore—180,800 engine miles without mechanical trouble.

The first non-stop flight from England to India was carried out by a Royal Air Force Fairey monoplane fitted with NAPIER engine—4,130 miles in 50 hours 38 minutes.

Sir Henry Segrave used a Napier engine when he piloted Sir C. Wakefield's motor boat Miss England at a speed of 92.8 m.p.h.—a record for single-engined motor boats.

# NAPIER

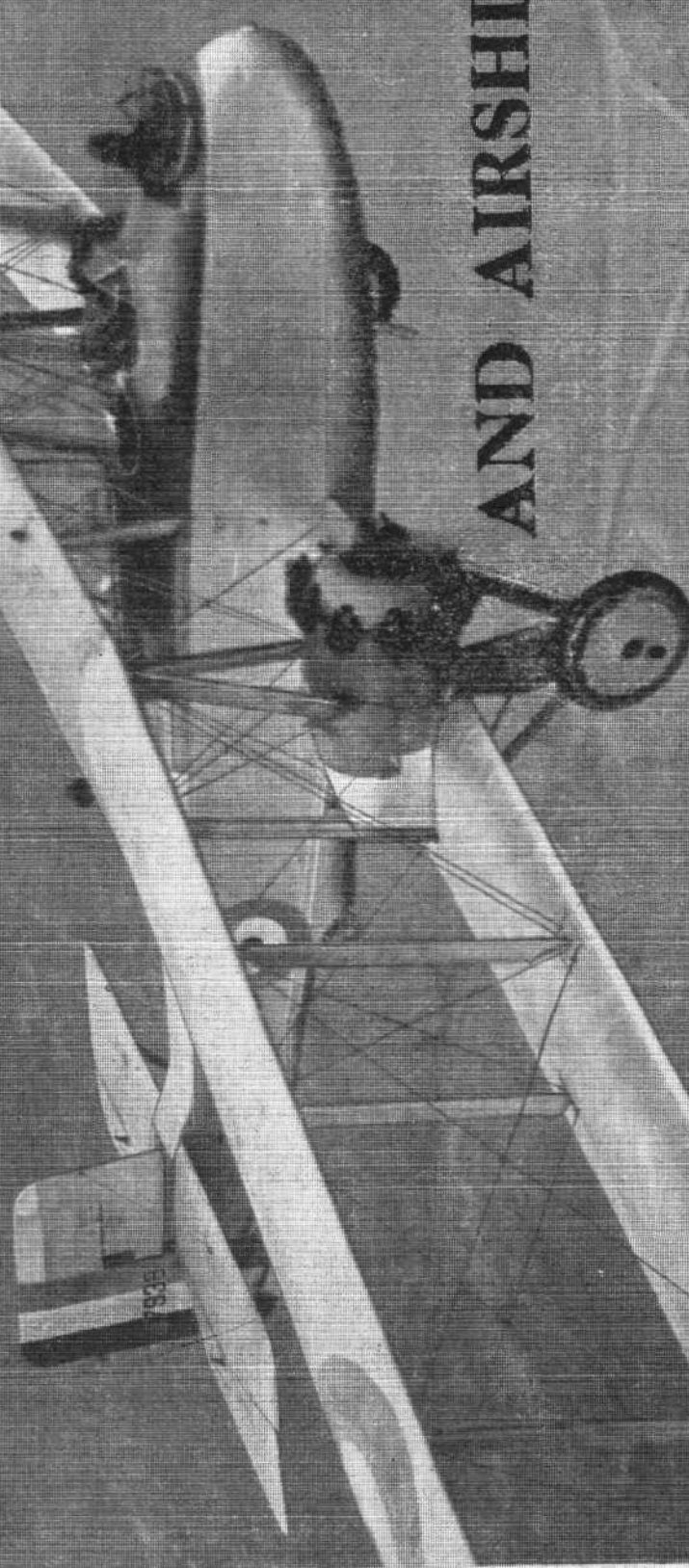
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[“FLIGHT” Photograph.]

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The capacity is 16 gallons, and a dial type contents gauge is fitted in the back of the sump, and is readily seen from the cockpit; the main petrol cock is fitted directly in the same sump, and is within easy reach.

Petrol flows by gravity direct to the carburettor; it also feeds a priming pump mounted in the cockpit, just below the centre of the dashboard.

An oil tank, which holds  $2\frac{1}{2}$  gallons of oil with plenty of expansion space, is of rectangular section and long. It is mounted transversely just behind the fireproof bulkhead, through which the filler neck passes. This filler is exposed by opening the port top bonnet, so that any oil spilt falls into the undershield and not inside the fuselage.

enables the shock absorber casing to be hinged open, exposing the rubbers and separators. Rebound loads are taken on steel springs.

The tail skid is of novel design, employing compression rubbers identical with those used on the main chassis. It has absolutely free castor action, and the whole skid and shock absorber can be withdrawn after undoing four nuts below the fuselage. At the same time, it is completely enclosed and protected.

#### Main Planes

These are of very sturdy construction, comprising top centre section, top outer and bottom planes. The external



THE SURREY A.L.I.: Three-quarter front and three-quarter rear views of the Surrey Flying Services' biplane. ("FLIGHT" Photos.)

A horizontal baffle inside the tank ensures that all the oil is kept in circulation. This baffle is situated between the return and service pipes, which are both midway between the tank ends. Oil returned from the engine has to pass outwards to each end of the baffle before rejoining the main body of oil. This helps also to dissipate the heat in the returning oil.

#### Undercarriage

The undercarriage is of the compression rubber type, with two side vees, braced in front, and a transverse shock-absorber incorporated in them, while universal joints are fitted wherever desirable. The axle is of ample proportions and the wheels of large diameter.

A feature to be noted is the accessibility of the shock absorbers for inspection. The withdrawal of a single skewer

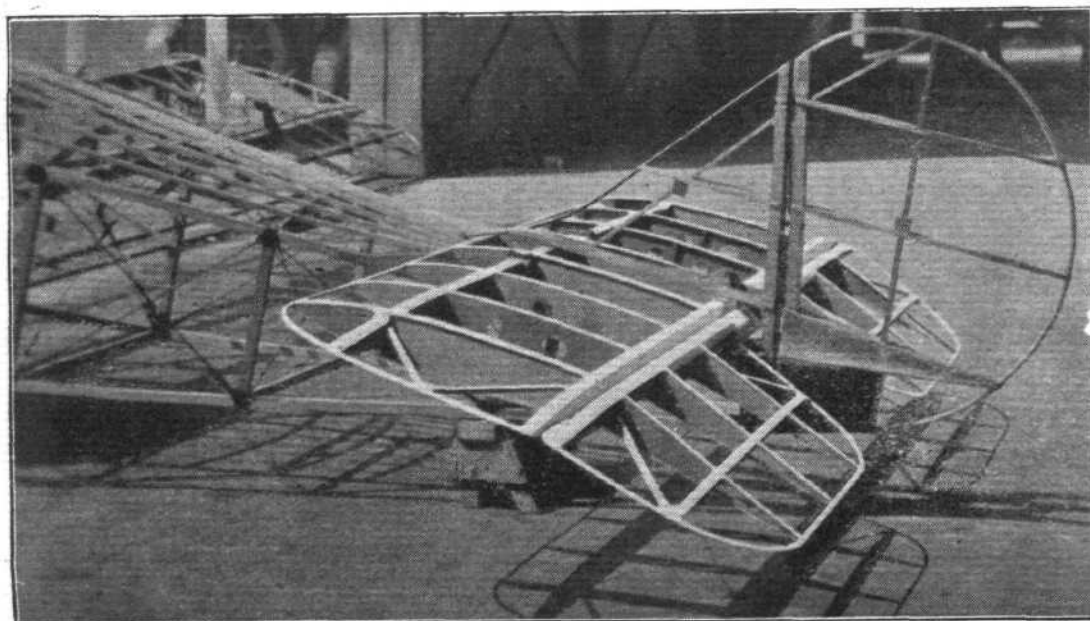
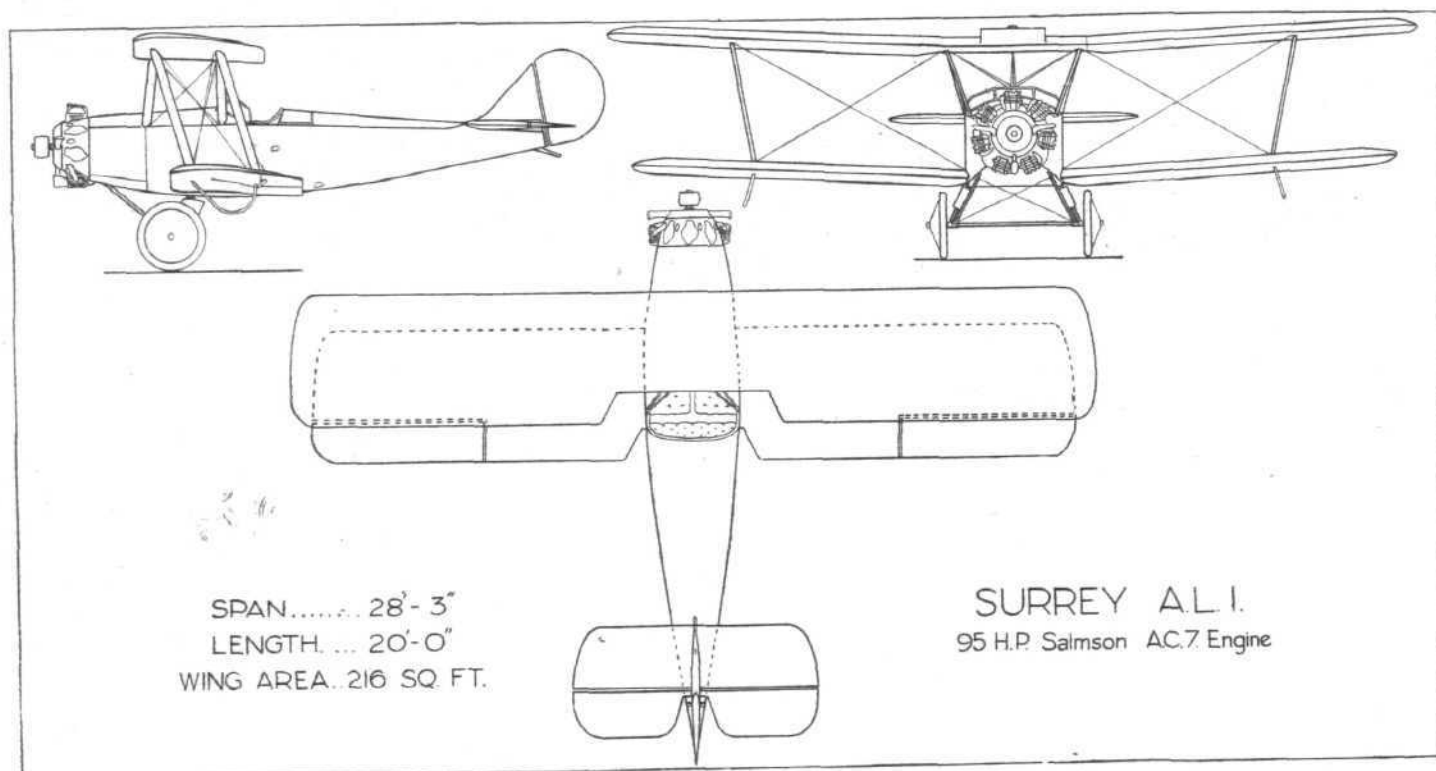
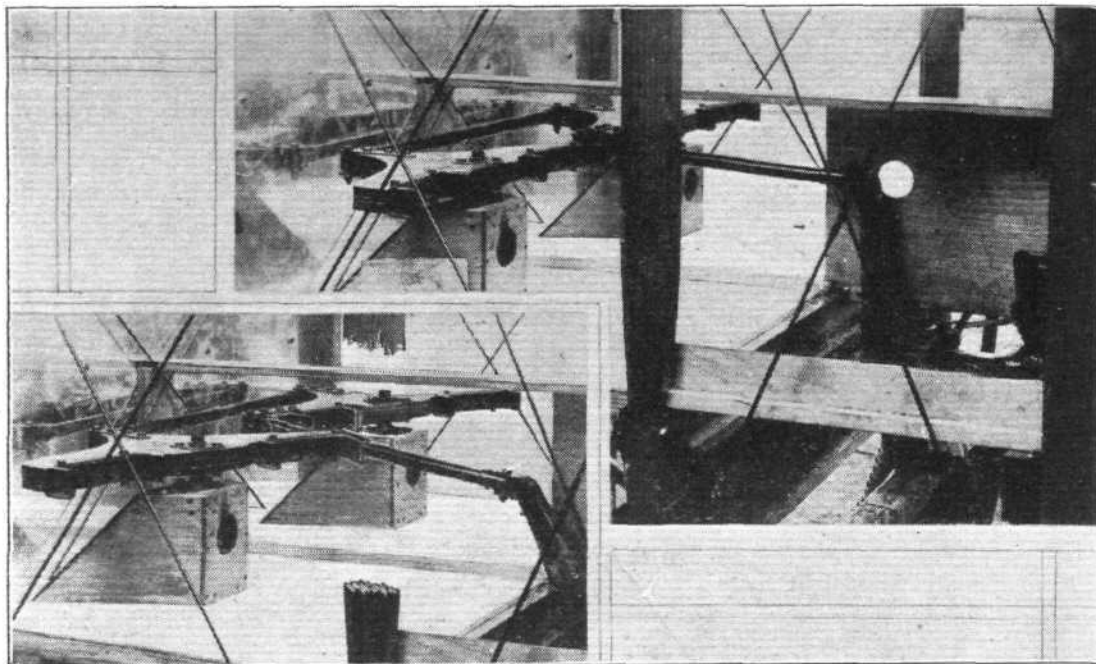
bracing is of the single-bay type with spruce inter-plane struts and rafwires. Both back and front lift wires are anchored to the fuselage at the lower front spar root. This facilitates entry to the cockpit, for which purpose steps are provided on the lower back spar roots, on both sides of the machine.

The centre section is fully braced all round. The construction of the planes themselves is extremely simple. Spars are of the box section, having spruce flanges and plywood webs.

Blocks are fitted both inside and outside the spars at points where the main fittings occur; and the latter are fitted outside the fabric, which enables them to be inspected, or replaced if damaged in stores, with the absolute minimum of trouble.



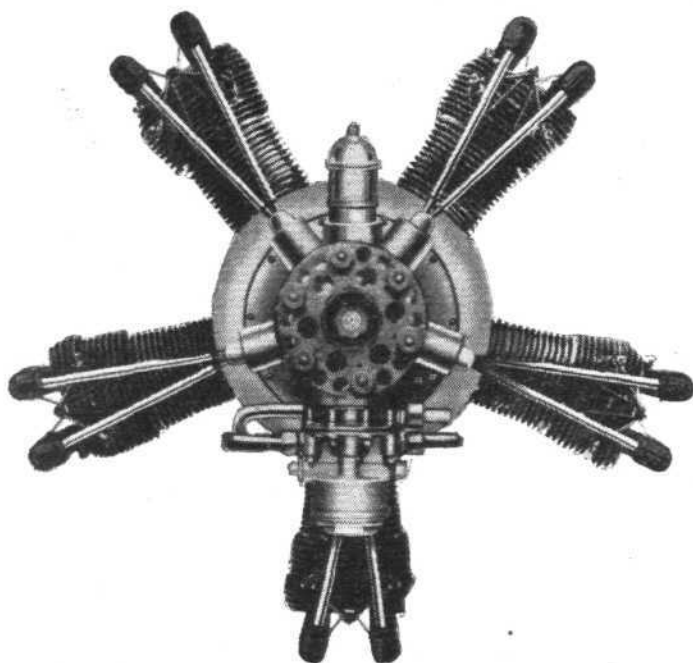
General views of  
rudder-bar assembly  
and rudder control  
connecting unit.



Side view of the tail  
unit, revealing in par-  
ticular the rib con-  
struction of the tail  
plane and elevators, and  
general simplicity of  
the entire empennage.

("FLIGHT" Photo.)

# A New Armstrong Siddeley Engine —the GENET MAJOR



Front view showing the enclosed Valve Gear and streamline rocker covers.



THE 100-110 h.p. Genet Major represents the results of ten years continuous progress in the design and manufacture of air-cooled radial engines. It embraces many of the most successful features of the latest Jaguar, Lynx and Mongoose engines, and is specially suitable for powering light aircraft and multi-engined aeroplanes.

## LEADING FEATURES:

5 cylinders 4.25" or 108 mm.  $\times$  4.5", or 114.3 mm., 319 cubic inches or 5.23 litres. Compression ratio, 5.23 to 1. Normal r.p.m. 2,200. Rated normal B.H.P. at sea level, 100, actual 103. Maximum B.H.P. at sea level, 110. Weight complete with two magnetos, carburettor, air intake, propeller hub and tachometer drive, 250 lbs. or 113.5 kgs. Overall measurements: diameter 38" or .95 m. Length 36.2" or .905 m.

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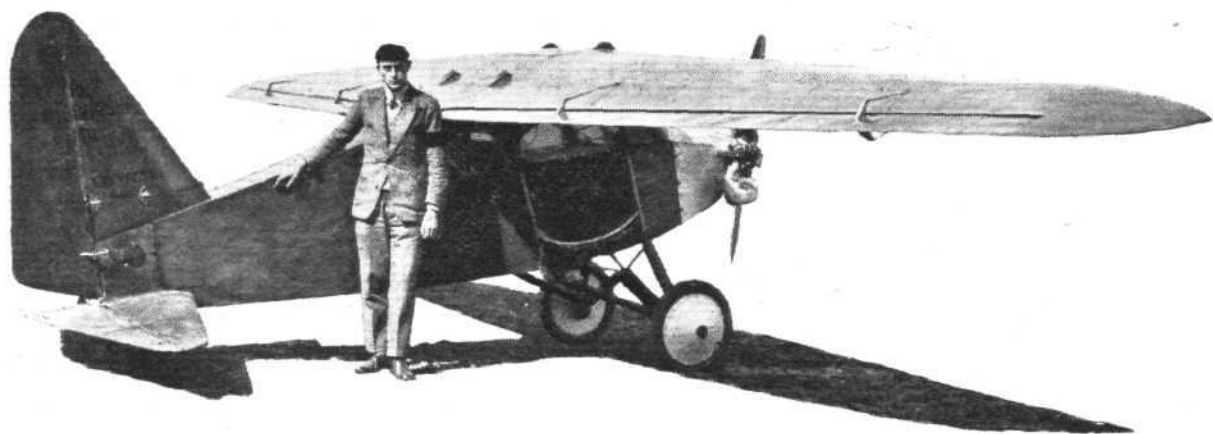
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100 Kilometres ... 139.534 k.m.h.

## ALTITUDE

5,193 metres

## DISTANCE

Closed Circuit ... 700 kilos

## DISTANCE

In line ... 852.1 kilos

All these Records were made by M. Charles Fauvel, between  
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## MAUBOUSSIN MONOPLANE

(Type 10) fitted with an

## A.B.C. SCORPION MARK II

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rate of 2,540 miles per gallon!

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Internal wing bracing is by piano wire of ample gauge, while compression ribs are used instead of separate drag-struts. The ribs are of the simplest and sturdiest form, comprised of rectangular spruce flanges with posts and braces of the same section, which makes repair by the owner a simple matter.

The whole of the wing structure, in common with the rest of the machine, has in fact been designed with this end in view.

Cane wing-tip skids are fitted, and ailerons are on the bottom plane only, so that controls are kept entirely in this plane, which makes inspection of them an easy matter.

Top planes are kept absolutely devoid of moving parts.

Continuation of the fuselage shape. The lever on this is also enclosed.

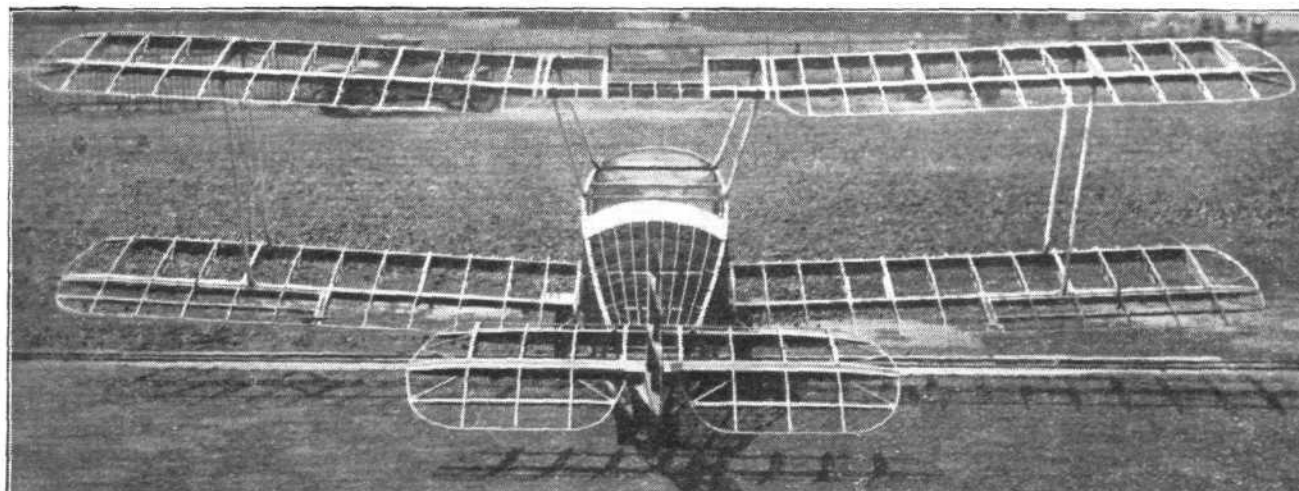
An aluminium panel gives access to the tail controls for inspection; and also enables the fuselage hereabouts to be inspected.

The whole tail unit is particularly clean, and in keeping with the rest of the aircraft.

The machine just completed by Surrey Flying Services, is of the open cockpit type.

An optional coupé roof has, however, been designed, which enables the machine to be used either as a closed or an open one as desired.

Also, it has been suggested, and is quite worth while,



The Surrey A.L.I. biplane in skeleton, photographed from the tail, showing the shape of the fuselage and methods of construction of the main planes and tail plane. ("FLIGHT" Photo.)

The construction of the aileron is similar to that of the main planes, and hinge bearing areas are kept up to the maximum, which greatly reduces wear on these parts.

#### Tail Unit

The tail plane and fin are of full cantilever type; the maintenance of fuselage width right to the sternpost affording an excellent base for their attachment, while also making for great torsional rigidity of the fuselage.

Construction of the tail unit is similar to that of the main planes: spars, finpost and rudder-post being of box section.

The elevator has the rectangular box spar augmented by the addition of a semi-circular plywood tube behind and attached to it; affording wonderful torsional rigidity.

The single elevator lever is central, and quite enclosed, whilst the rudder swells out at the lower part to form a con-

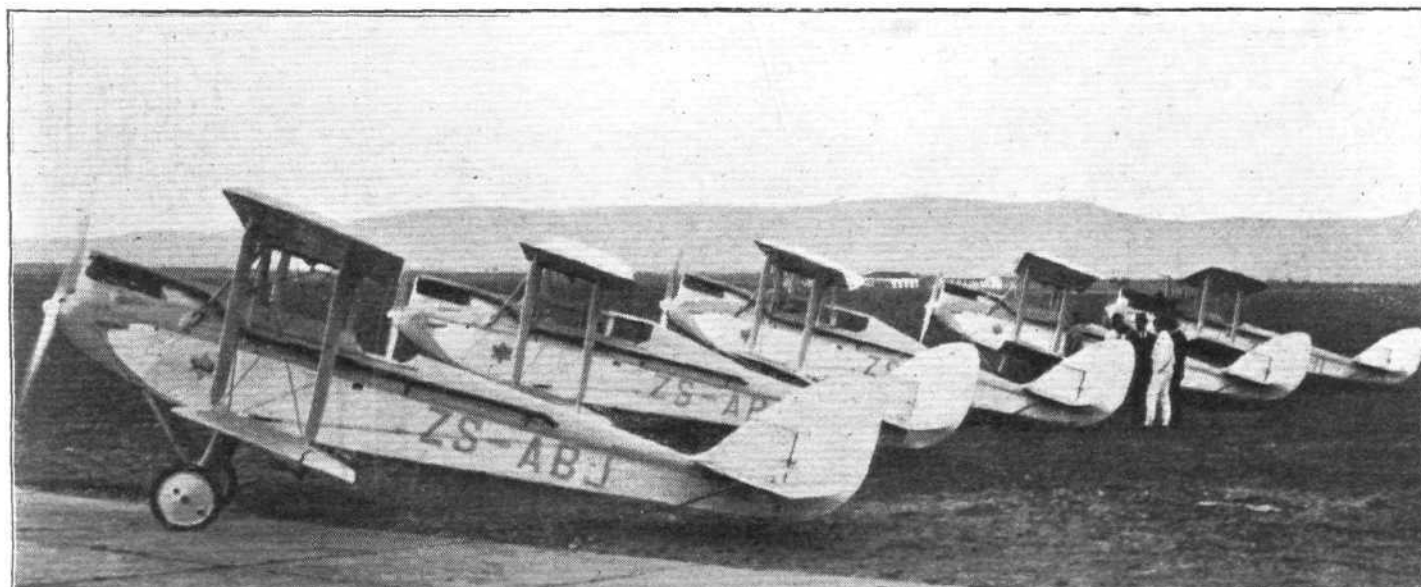
tinuation of the fuselage shape. The lever on this is also enclosed.

that a detachable section of decking, with a cockpit opening and windscreen might replace when desired the lid of the luggage compartment.

This would then be converted into an extra cockpit for a child (seated sideways on a removable seat), so the machine could become quite a family affair!

The generous allowance of weight for pilot, passenger and luggage made on the aerobatic C. of A. would usually permit of this; and would definitely do so for non-aerobatics.

In conclusion, it might be mentioned that the Surrey Flying Services type A.L.I., though small in overall dimensions is not a "light aeroplane," but a sturdy machine designed and constructed to withstand hard usage for business, pleasure or training; and to afford the greatest ease of maintenance and repair.



"GIPSY-MOTHS" FOR UNION AIR MAIL: The Union of South Africa Airways are making use of the "Moth," and above is a batch of machines lined up at Cape Town, ready to fly to Port Elizabeth

# AIRISMS FROM THE FOUR WINDS

## Sydney to Perth Air Race

EXCEPT for the race round Europe, the Sydney-Perth race is quoted as the longest in history. It will occupy six days, and the total distance of 2,450 miles is divided into 12 stages, two of which are to be flown each day. Seventeen machines left Sydney on Monday. Of the original 25 entries 18 were De Havilland machines, 13 being Gipsy-Moths, 2 being Cirrus-Moths, 1 D.H. 50, 1 D.H. 9, and 1 D.H. 37. The race is a handicap one, and the first prize is £1,000. After the finish the machines will take part in the Western Australian Centenary Celebrations.

## Rockets!

HERR FRITZ OPEL has succeeded in flying in a rocket-propelled light aeroplane. The machine was a small monoplane with the tail units mounted high on booms from the wing. The fuselage was cut off short behind the pilot, and the rockets were contained in that part immediately behind him. The rockets appear to have been in batteries which could be ignited at will so as to prolong the flight. The take-off was accomplished by mounting the aircraft on a trolley running on rails. The trolley was itself propelled by rockets, and on reaching a buffer at the end of the rails it shot the aircraft into the air. At this point the rockets in the machine were started and the flight continued. At the third attempt a successful take-off was accomplished and a flight of about a mile made. The landing was fairly good, but after taxiing a little way the pilot let the machine swing and it turned over, without, however, serious damage.

## "Land of the Soviets"

THE Soviet aeroplane "Land of the Soviets," which is making an attempt to fly from Moscow to New York by way of Siberia and Alaska, arrived at Sitka (Alaska).

## Sir H. Wilkins South Polar Expedition

SIR HUBERT WILKINS, with two pilots, left New York for Monte Video on September 28. He hopes to explore a further large tract of shore west of Grahamland, and to locate a site for the last of the Antarctic meteorological stations, through which it is hoped to determine weather conditions in the Northern Hemisphere five years in advance.

## Royal Opening of New Brussels Aerodrome

KING ALBERT opened the Aerodrome at Èvere near Brussels last Sunday, in the presence of a crowd estimated at 100,000. An air meeting which was run in connection with the ceremony was a great success, and Herr Lusser, in

a Klemm-Salmson, won the King's Prize and Cup in a competition for touring machines.

## Gordon-Bennett Balloon Race

NINE balloons from six nations started from St. Louis on Saturday last for the 18th Gordon-Bennett International Cup Race.

## Graf Zeppelin

THE "Graf Zeppelin" made a flight from Friedrichshafen last Saturday, round the Jungfrau and over Berne with 32 passengers on board.

## New Fokker Tried Out

WHAT is claimed to be the largest aeroplane in the world has recently been put through its trials at Hasbrouck Heights, New Jersey. The machine is the new Fokker F. 32 with four 525-h.p. Pratt and Whitney engines, and has accommodation for 30 passengers, two pilots, a wireless operator and a steward. The span is given as 99 ft., and the top speed as 140 m.p.h., with a cruising speed of 120 m.p.h.

## Bluebird for Japan

THE Mitsubishi Kokuki Kabushiki Kaisha have recently purchased a Blackburn Bluebird. This machine will be fitted with floats and should prove an attractive proposition for Japanese waters.

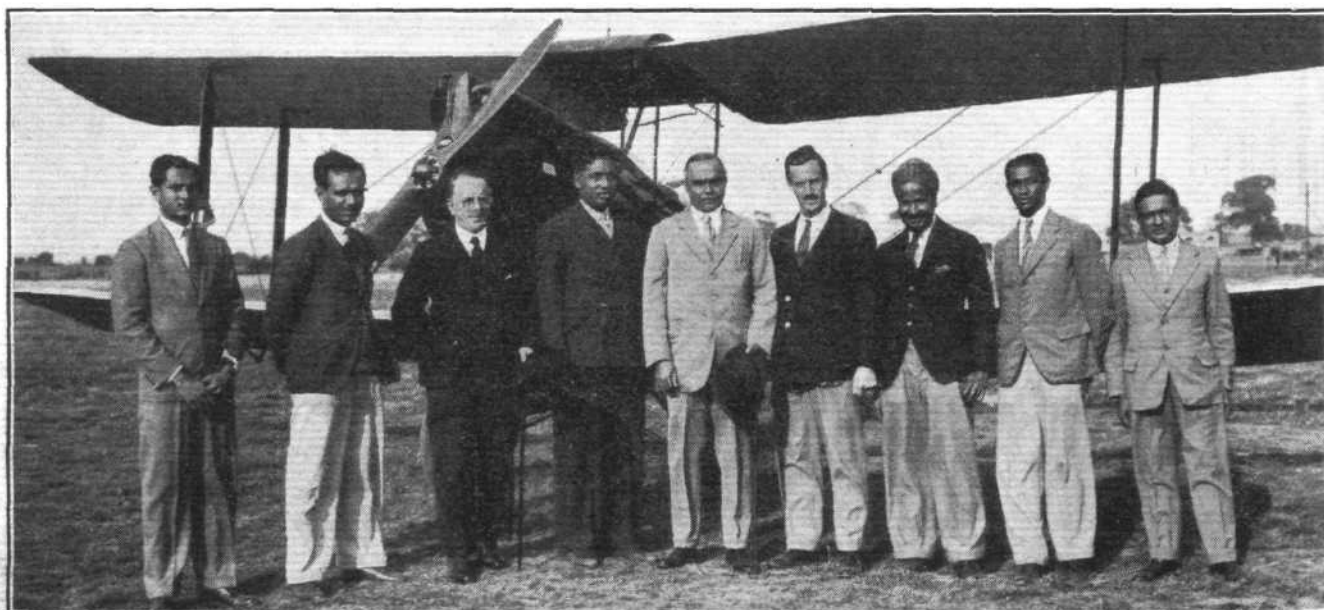
## Luft Hansa Finance

THE report for 1928 of the Deutsche Luft Hansa shows a greater increase in expenditure than in receipts over the previous year, with a consequent decrease in surplus. The income is made up of two-thirds subsidies and the remainder working receipts. For 1928 receipts were 31,754,883 marks (£1,587,744) and expenditure 31,745,387 marks, leaving a surplus of 9,496 marks. For 1927 receipts were 30,615,321 marks and expenditure 30,596,267 marks, leaving a surplus of 19,054 marks.

## French Long-Distance Flights

MM. COSTES AND BELLONTE left Le Bourget in an attempt to beat the long-distance record for a straight flight by aeroplane, on Friday, September 27. They were making for Harbin via Lake Baikal, and were reported over Novosibirsk on Saturday afternoon, 3,750 miles from Paris. Their machine is a modified Bréguet XIX.A.2 (600-h.p. Hispano-Suiza engine).

Favreau and De Maronier, who set out on Wednesday last for Madagascar, turned back owing to weather and landed near Tunis.



INDIANS AT STAG LANE: Recently the High Commissioner for India, Sir Atul Chattejee, and Dr. Quayle, Director of Education in India, paid a visit to the De Havilland works to inspect the progress of the eight Indian students now being trained there. ("FLIGHT" Photo.)



# ARMSTRONG WHITWORTH AIRCRAFT



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### PERFORMANCE FIGURES

#### ATLAS WITH JAGUAR ENGINE AND TOWNEND RING

Fuel, 75 gallons (337 litres). Oil, 7 gallons (32 litres). Military Load, 880 lbs. (400 kgs.)

	Plain Engine.	Geared Engine		Plain Engine.	Geared Engine.
Approx. total weight	4000 lbs.	4115 lbs.	Time to 5000 ft.	5.25 minutes	4.25 minutes
	1820 kgs.	1870 kgs.	" " 10000 ft.	12.5 "	10.5 "
Speed at ground level	143.5 m.p.h.	149 m.p.h.	" " 15000 ft.	26 "	21.75 "
	231 km.p.h.	240 km.p.h.	" " 10000 mtrs.	3.5 "	2.5 "
" " 5000 ft.	139.5 m.p.h.	145 m.p.h.	" " 3000 "	12.5 "	10.25 "
" " 10000 ft.	134 m.p.h.	140 m.p.h.	" " 5000 "	34 "	27.5 "
" " 15000 ft.	125 m.p.h.	131 m.p.h.	Absolute Ceiling	19000 ft.	19100 ft.
" " 1000 metres	226 km.p.h.	236 km.p.h.		5800 metres	5830 metres
" " 3000 metres	216 km.p.h.	225 km.p.h.	Service Ceiling	17300 ft.	17700 ft.
" " 5000 metres	193 km.p.h.	204 km.p.h.		5280 metres	5400 metres
	Maximum allowable R.P.M. 2200. Normal R.P.M. 2000				

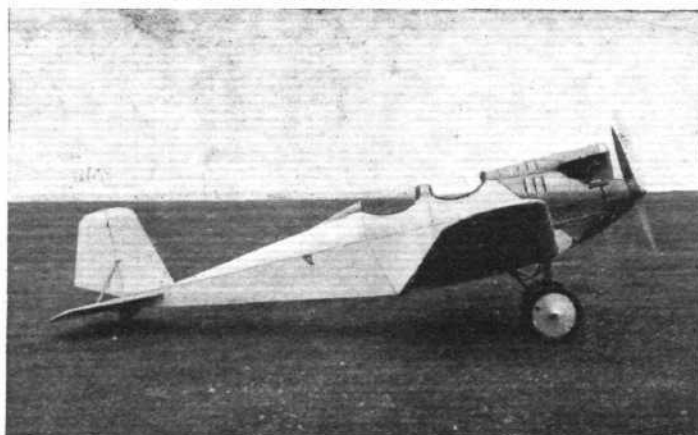
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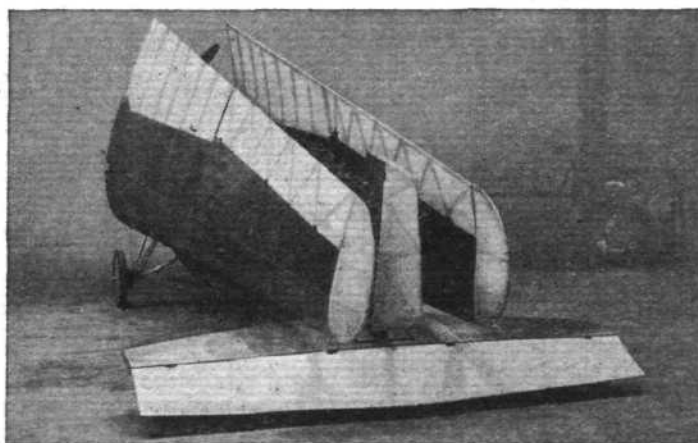
## THE WINNING MACHINE OF THE INTERNATIONAL CHALLENGE FLIGHT, 1929 MESSERSCHMITT BFW-M 23



WITH THE VICTORIOUS SIEMENS SH 13, 72/80 H.P.



WITH THE CIRRUS M.III, 88/95 H.P.



WITH THE ARMSTRONG SIDDELEY GENET, 81/86 H.P. (FOLDED).

**MORZIK, WINNER OF ALL CLASSES, FIRST  
IN CATEGORY II.**

**V. DUNGERN, THIRD IN CATEGORY II.  
OFFERMANN, WINNER OF THE GERMAN  
CONSTITUTION PRIZE (CATEGORY II).**

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## SYWELL

THE Northamptonshire Aero Club held their last flying meeting for this year at Sywell last Saturday, September 28. They have gained a name for cheery meetings, and this one was no exception. The spectators were not very numerous but they were really interested and hung right on to the end of the meeting, even though things dragged a bit after tea-time.

It is becoming increasingly difficult to be original at these meetings, but the committee responsible for arranging this one certainly produced in the Novelty Race a "turn" which received the approbation of the onlookers.

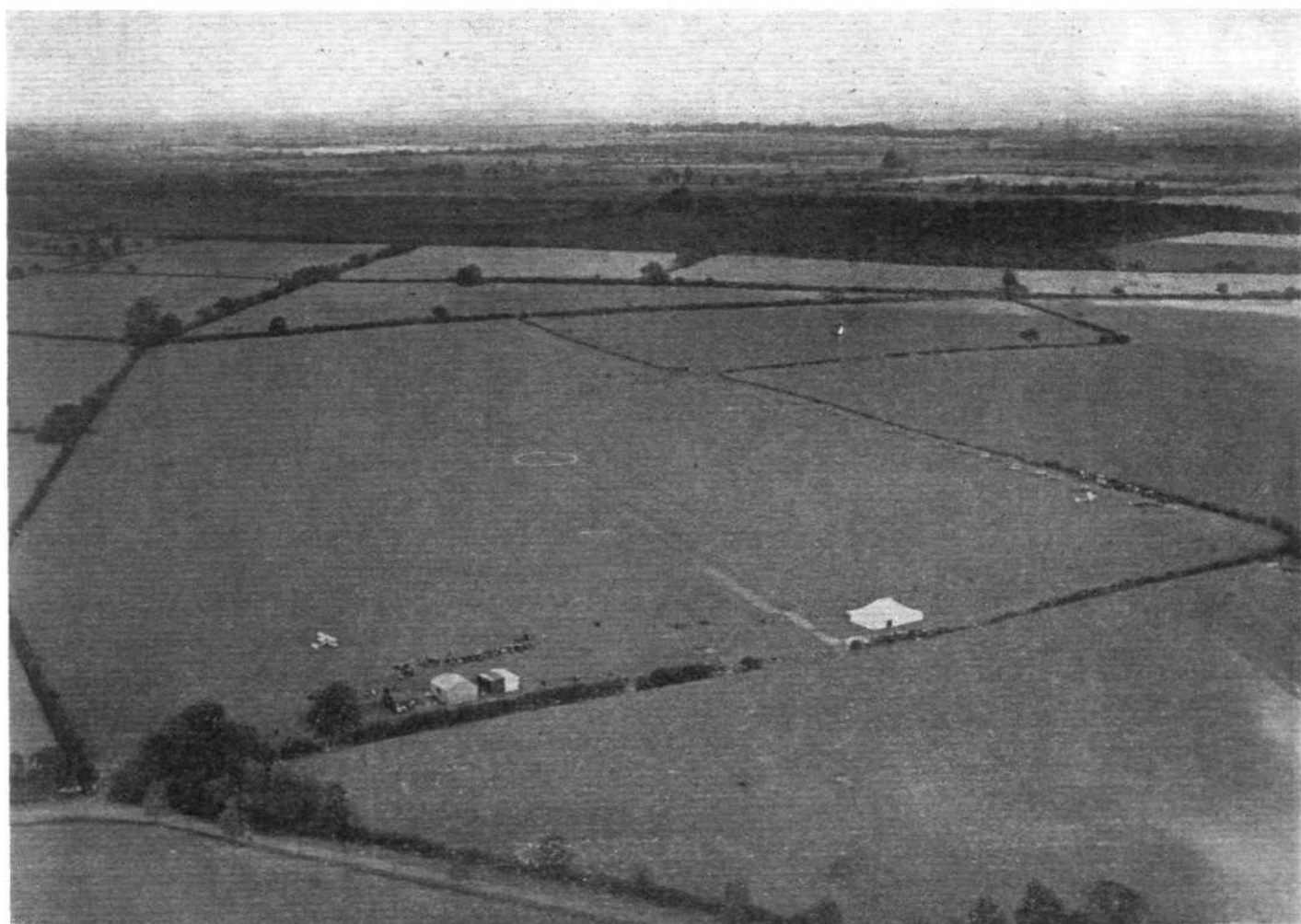
In this race each pilot selected a lady passenger by drawing lots for her. Having secured his passenger and instructed her in the mysteries of folding wings, the pilot lined up his machine with the engine ticking-over. The passengers were then arranged between the machines and the spectators with three empty beer bottles standing in front of each of them and about 10 ft. away from them. At the word "go" they had to knock over the bottles with tennis balls; as soon as the third bottle was down the pilot had to run to an official car near by and secure a needle and a length of cotton which he could exchange for a ticket as soon as the needle was threaded. While the threading was in progress the

passengers were scrambling into their respective machines in readiness for the pilots who came dashing across when they had secured their tickets. The machines had next to be taken off and flown once round Sywell reservoir and landed again near the car. The wings had then to be folded and the first passenger to reach the car after this was done was the winner.

Two heats were necessary as there were eight entrants, and the first two in each heat competed in the final. Flight-Lieut. T. Rose with Miss Harris were the winners, a result which was largely helped by the magnificent piloting of Mr. Rose, who put the machine down close to the official car in spite of a certain amount of cross wind.

The proceedings were opened with an impromptu aerobatic display by Mr. Murray. Mr. Murray who was trained by the Brooklands School of Flying has already made quite a name for himself and bids fair to become quite "a star turn."

Two Genet Moths flown by Flight-Lieut. M. Wiblin and Flying Officer W. Johnson gave a very finished display, and so long did they fly inverted that one heard a lady remark that she was sure they must have fainted and could not right their machines! Their slow rolls were executed in a most masterly fashion and to see a Moth rolled four times in



SYWELL AERODROME FROM ABOVE : Taken before the meeting began. ("FLIGHT" Photo.)

# AT SYWELL



(1 and 2) R.A.F. Genet Moths in which Flt. Lt. M. Wiblin and F/O. W. Johnson helped to enliven the meeting. The Novelty Race :—(3) Bombing the bottles (Flt. Lt. Rose at longstop) ; (4) Smiles of Victory ; (5) Good team work by the winning crew.

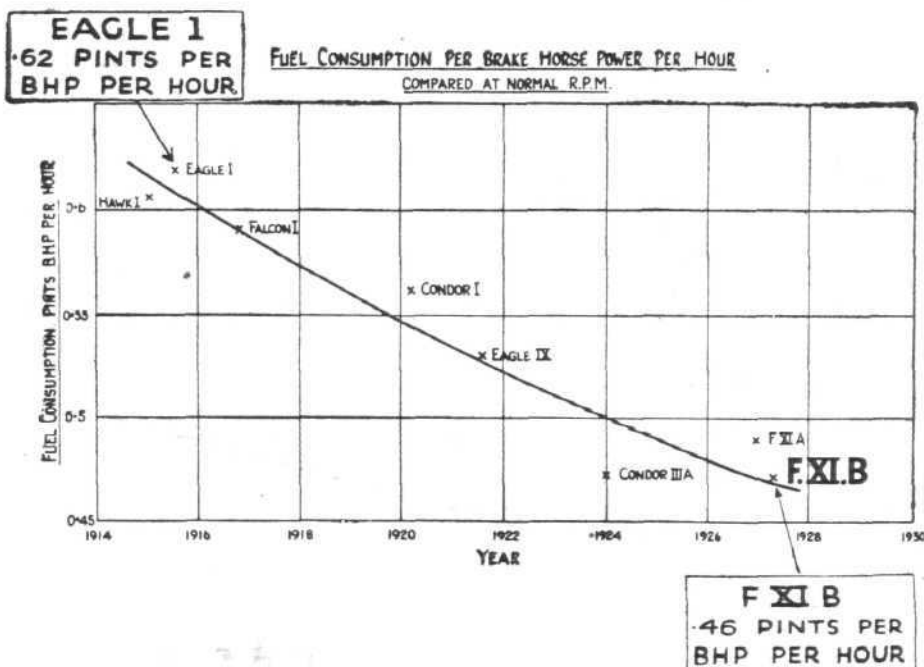
(6) Mr. R. G. Murray whose aerobatics gained him much applause. ("FLIGHT" Photos.)



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ON December 29th 1928, a standard Gipsy Engine taken at random from production, was housed in a standard Moth and sealed throughout by Government officials, *making it impossible to carry out any work on the engine or to make any replacements, without breaking the seals.*

The object of the tour was to demonstrate the utter reliability of the Gipsy engine by compiling a total of 600 flying hours without overhaul, repair or replacement. The rockers and cylinder heads were sealed to the cylinders, the cylinders, oil pump and magnetos were sealed to the

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crankcase, the halves of the crankcase were sealed together, the carburetter was sealed to the induction pipe and all four cylinders were sealed together. **NOTHING COULD BE TOUCHED.**

For nine months this engine has been running faultlessly, attention being confined to routine cleaning of filters and sparking plugs, checking of valve clearances, and the correction of a minor defect in the impulse starter mechanism of one magneto. **THROUGHOUT THE ENORMOUS MILEAGE OF 51,000 NOT THE SLIGHTEST TROUBLE WHATSOEVER HAS BEEN EXPERIENCED.**

Ambition has been realised — 600 flying hours with unbroken seals—and now, under Government observation, the engine is being dismantled and minutely examined. An official report will be made on its condition and the valuable data gained will react to the benefit of Gipsy engine users throughout the world.

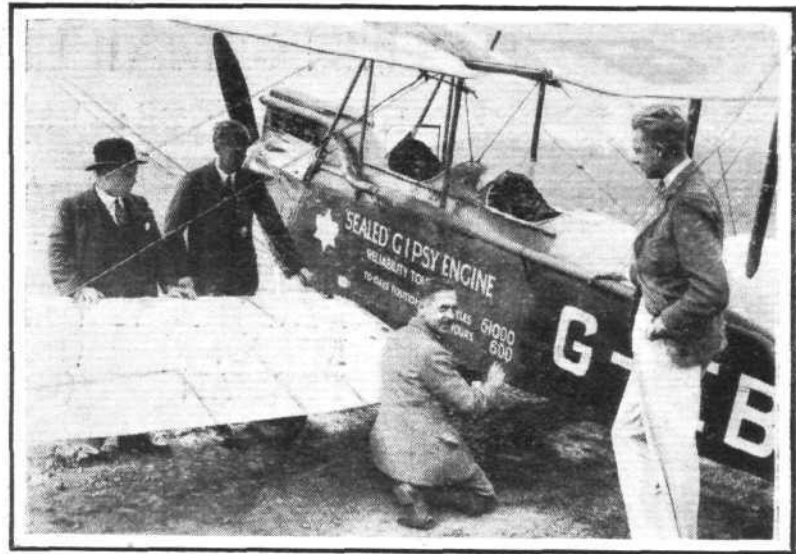
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Melbourne, Australia  
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Melbourne



*Altering the figures for the last time.*



*Cowling and propeller removed, and seals still untouched.*



*Starting to dismantle the engine.*

*Photos by Flight.*

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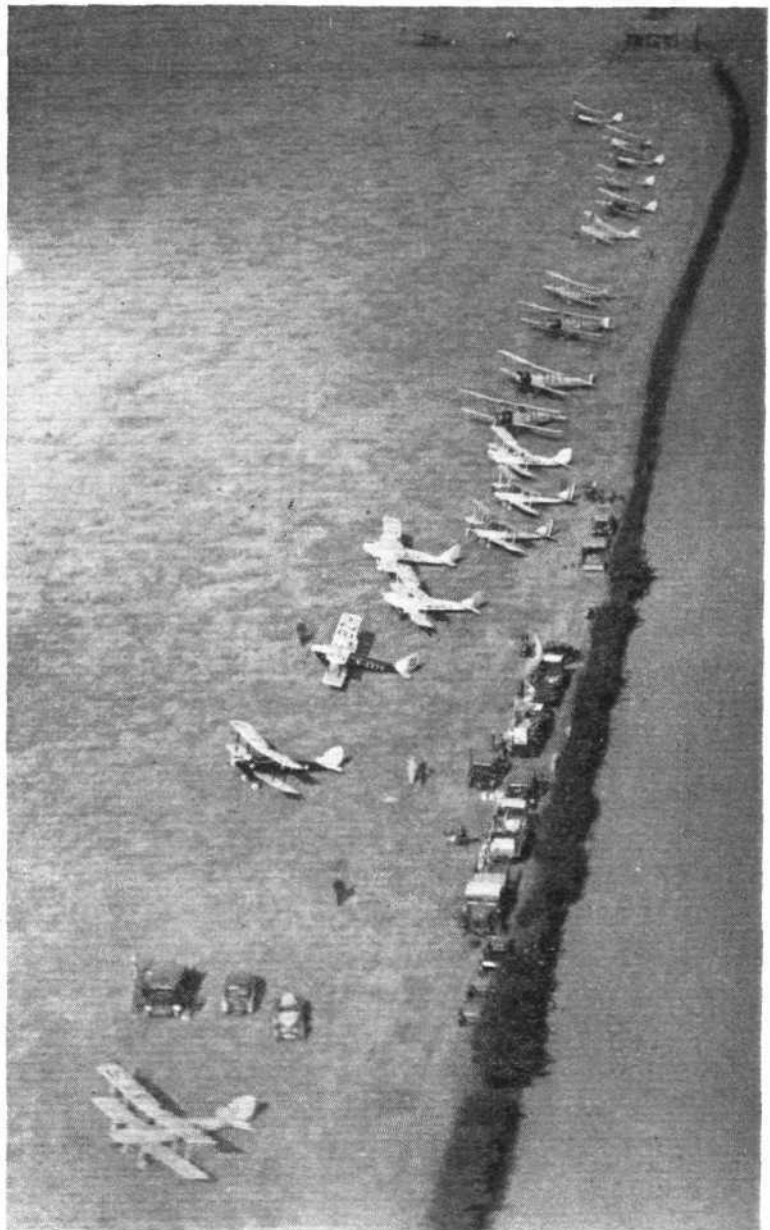
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succession without losing or gaining height was an eye-opener to those who have considered that a Genet-Moth was underpowered.

The Moth is certainly one of the prettiest machines to watch when it is used for aerobatics. We have for so long been accustomed to regard the single-seater fighter as *the* machine for such work that it came as rather a shock, when the Moth was used at Hendon for this work, to realise that in it we had a machine which allowed the pilot to do almost anything and yet to do it with a new grace and attraction which was totally different from the sheer-power effect of fighters. The fighter made no bones about its being dragged through the air by high power, whereas the Moth seemed to fly through the evolutions as though it were a butterfly taking good care that it was not being mistaken for a bumble-bee.

Quite a large number of visitors turned up and after lunch there were nearly 30 machines lined up in the "park." Lady Bailey and Sir Sefton Brancker were among those who lent their support, and three R.A.F. Avro's were brought over by officers from Wittering. Capt. Davis and the Brooklands School of Flying came over in force with seven machines, two Avro's and two Moths being their own machines and three of their private-owner-pupils came with them in their machines.

The Northampton Club is certainly to be congratulated on its enterprise as besides being one of the first to start up without a subsidy it also actually pays its way.



TWO AERIAL VIEWS OF SYWELL: Above, some of the machines attending the meeting; below, a close-up of the Club House and Hangars. ("FLIGHT" Photo)

# LIGHT 'PLANE CLUBS

**London Aeroplane Club**, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.  
**Bristol and Wessex Aeroplane Club**, Filton, Gloucester. Secretary, Major G. S. Cooper, The Aerodrome, Patchway, Glos.  
**Cinque Ports Flying Club**, Lympne, Hythe. Hon. Secretary, R. Dallas Brett, 114, High Street, Hythe, Kent.  
**Hampshire Aero Club**, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.  
**Lancashire Aero Club**, Woodford, Lancs. Secretary, Mr. Atherton, Avro Aerodrome, Woodford.  
**Liverpool and District Aero Club**, Hooton, Cheshire. Hon. Secretary, Capt. Ellis, Hooton Aerodrome.  
**Midland Aero Club**, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.  
**Newcastle-on-Tyne Aero Club**, Cramlington, Northumberland. Secretary, John Bell, Cramlington Aerodrome, Northumberland.

**Norfolk and Norwich Aero Club**, Mousehold, Norwich. Secretary, G. McEwen, The Aerodrome, Mousehold, Norwich.  
**Northamptonshire Aero Club, Ltd.** Hon. Sec., P. Hayward, 19, Market Square, Northampton. Aerodrome: Sywell Aerodrome.  
**Nottingham Aero Club**, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., 30, Park Row, Nottingham.  
**The Scottish Flying Club**, 101, St. Vincent Street, Glasgow. Secretary, George Baldwin, Moorpark Aerodrome, Renfrew.  
**Southern Aero Club**, Shoreham, Sussex. Secretary, Miss N. B. Birkett, Shoreham Aerodrome, Sussex.  
**Suffolk Aeroplane Club**, Ipswich. Secretary, W. J. Offord, The Aerodrome, Hadleigh, Suffolk.  
**Yorkshire Aeroplane Club**, Sherburn-in-Elmet, Yorks. Secretary, Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

## BRISTOL & WESSEX AEROPLANE CLUB, LTD.

(SEPT. 1-28).—Machines in commission (3): YH, XF, TV.  
 Flying hours: 124 hrs. 20 mins. Pupils instructed and hours flown (42), 76 hrs. 10 mins. Soloists and hours flown (4), 15 hrs. 45 mins. Licensed pilots ditto (12), 19 hrs. 5 mins. Passengers carried and hours flown (53), 12 hrs. 45 mins.

With the deepest regret we have to record a fatal accident involving the death of Mr. E. M. Tiarks and the Hon. Edward Somerset, when flying together in Mr. Tiarks' machine on September 23. Mr. Tiarks was a most enthusiastic supporter of the Club, and his loss will be very genuinely felt by all our members, with whom he was a great favourite. On September 22 we held our farewell party, before moving to the new Municipal aerodrome. It was voted a success, largely due to the good friends who came to see us in their machines, to all of whom we offer our most appreciative thanks. Although there had been no advertisement, and the party was by invitation, there was a large gathering in the public enclosure, and we intend our first show on the new aerodrome, next spring, to be equally good. Mr. R. A. Rioch, Mr. K. H. Potter, and Mr. D. Finch Hatton passed their "A" licence tests during the month.

## CINQUE PORTS FLYING CLUB, LTD.

(SEPT. 21-28).—Total for week: 50 hrs.  
 Dual instruction: 15 members 23 hrs. 45 mins.  
 Advanced dual: 2 members, 1 hr.  
 Soloists under instruction: 3 members, 4 hrs. 45 mins.  
 "A" pilots: 9 members, 17 hrs. 45 mins.  
 Joyrides: 25 mins.  
 Tests: 1 hr. 50 mins.

This week's total of 50 hrs. is an amazing performance. G-EBRI did 26 hrs. 20 mins., equal to nearly 2,000 m., while G-EBPM did 23 hrs. 40 mins., equal to just over 1,750 m. 3,750 m. in six days by two aircraft is most remarkable when it is considered that the time was composed of flights of 30 and 15 mins., and much time which is not counted, was occupied in changing the occupants and taxiing. We doubt that any other club can show such a result from two aircraft and one instructor, and the club offers its heartiest congratulations to Mr. K. K. Brown and his staff.

On Thursday, Sept. 26, Mr. L. Milton of Shepherdswell, near Dover, and Mr. H. Calvert, of Hildenborough near Sevenoaks, passed for "A" licence. Seven of our members have taken their "A" licences in the four weeks ending Sept. 26; while in the half-year ending Sept. 30, Mr. Brown has trained 12 members, which compares with the 15 licences obtained in the whole of last year.

On Friday, Sept. 27, Mr. J. Bowring went solo and made three good landings. Mr. Bowring is only 16 and is our youngest member. Unfortunately he had to return to school on the next day, and consequently will not be able to pass for his aviator's certificate until his next holidays. Mr. Bowring has beaten his elder brother aged 17, by a short head, as his brother had to return to school a day or two earlier.

The club was very distressed to learn that one of their most promising pupils, Mr. E. V. Somerset, of the Coldstream Guards, who was trained at Lympne last winter, had met with a fatal accident near Bristol while flying as a passenger in an aeroplane belonging to Mr. Tiarks. Mr. Somerset had only recently resigned his membership of this club on transferring from Canterbury depot. He was exceedingly popular, and his death will be a great loss.

On Sept. 30, the club had 109 members, of whom 94 were flying members and 32 were qualified as pilots holding "A" or "B" licences.

The club is indebted to Mr. J. Scott-Taggart, who has presented them with a fine H.M.V. gramophone.

Provided the Air Ministry agrees, it is proposed to extend the club room during the holidays from October 6 to 16.

## LANCASHIRE AERO CLUB

(SEPT. )—Total time, 98 hrs. 25 mins.  
 Five new members commenced instruction.  
 During the last week of the month, XD sustained serious damage while

being flown from Woodford to Wythenshawe. Mr. D. E. Hall, our chief instructor, who was piloting from the front seat broke a knee cap and ground engineer Bartram, in the back seat, was cut about the face. Their many friends will be glad to hear that they are making excellent progress.

It will be a month or two before Mr. Hall can resume his duties and meanwhile Mr. Michelmore, lately an instructor with the Phillips & Powis School of Flying, is taking over his work.

## LEICESTERSHIRE AERO CLUB

FLYING instruction has started at Desford Aerodrome and F/Lt. Bateman has taken up his job in a most vigorous manner.

Members who desire to arrange for instruction should get in touch with him at the aerodrome (Tel. Desford 48).

F/Lt. Bateman will be in attendance from 10.30 to 1 and from 2.30 to sunset daily except on Mondays, when the aerodrome will be closed.

Between the hours of 1 and 2.30 each day except on Monday, the machine will be available for use by fully licensed pilots subject to permission being obtained at least two hours in advance.

## SCOTTISH FLYING CLUB, LTD.

(AUGUST).—The weather generally has been poor and both wind and rain have kept the flying time down. Total time, 155½ hrs. Dual instruction, 74½ hrs.

There are at present 39 members under instruction, including four ladies.

The Badminton Section is flourishing and is the best club of its kind in Scotland. Play commenced on October 1.

## Plymouth Aero Club?

Under the auspices of the Plymouth Chamber of Commerce, Plymouth Mercantile Association, Devonport Mercantile Association and Plymouth Rotary Club, a committee has been formed to inaugurate a light aeroplane club. The project has been helped by the Corporation deciding to purchase the flying ground at Roborough for a municipal aerodrome. Leading business men are identified with the movement, and it is confidently expected that within twelve months of the formation of the club there will be a considerable number of owner-pilots in the district. A local firm has offered a 20-guinea silver challenge cup for competition among the members. The enterprise is being enthusiastically supported as it is realised that Plymouth, owing to its geographical position, is likely to become one of the most important air ports in the country.

## FROM THE FLYING SCHOOLS

### Brooklands School of Flying, Brooklands Aerodrome

(SEPT. 22-29).—Flying time, 63 hrs. On Friday, a number of school machines flew to Northampton Aero Club meeting. On Saturday more machines flown chiefly by pupils also flew to Northampton. This was the first cross-country flight by some of our private owner pupils. The meeting itself was a great success and all credit is once again due to the committee and members of the Northampton Aero Club on their excellent organisation (not to mention thanks for their unequalled hospitality).

During the week, our latest lady pupil, Miss D. Melchers, carried out her first solo flight most successfully, since then it has been most difficult to keep her on the ground for more than a few minutes at a time.

Mr. J. E. Foster joined the school during the week, having been flying previously down in Devonshire. It only took him 2 hrs. or so to fly solo.

### The Phillips and Powis School of Flying

(SEPT. 19-26).—Flying time: 23 hrs. 15 mins. Instructor: W. Giddy.  
 The following new pupils have this week joined the school—Dr. Nicholson and Messrs. Newman, Coggin, Walton, Kemp, Peach and Coronie.  
 Messrs. Skuce and Nash have to be congratulated on passing their "Height" test so satisfactorily.

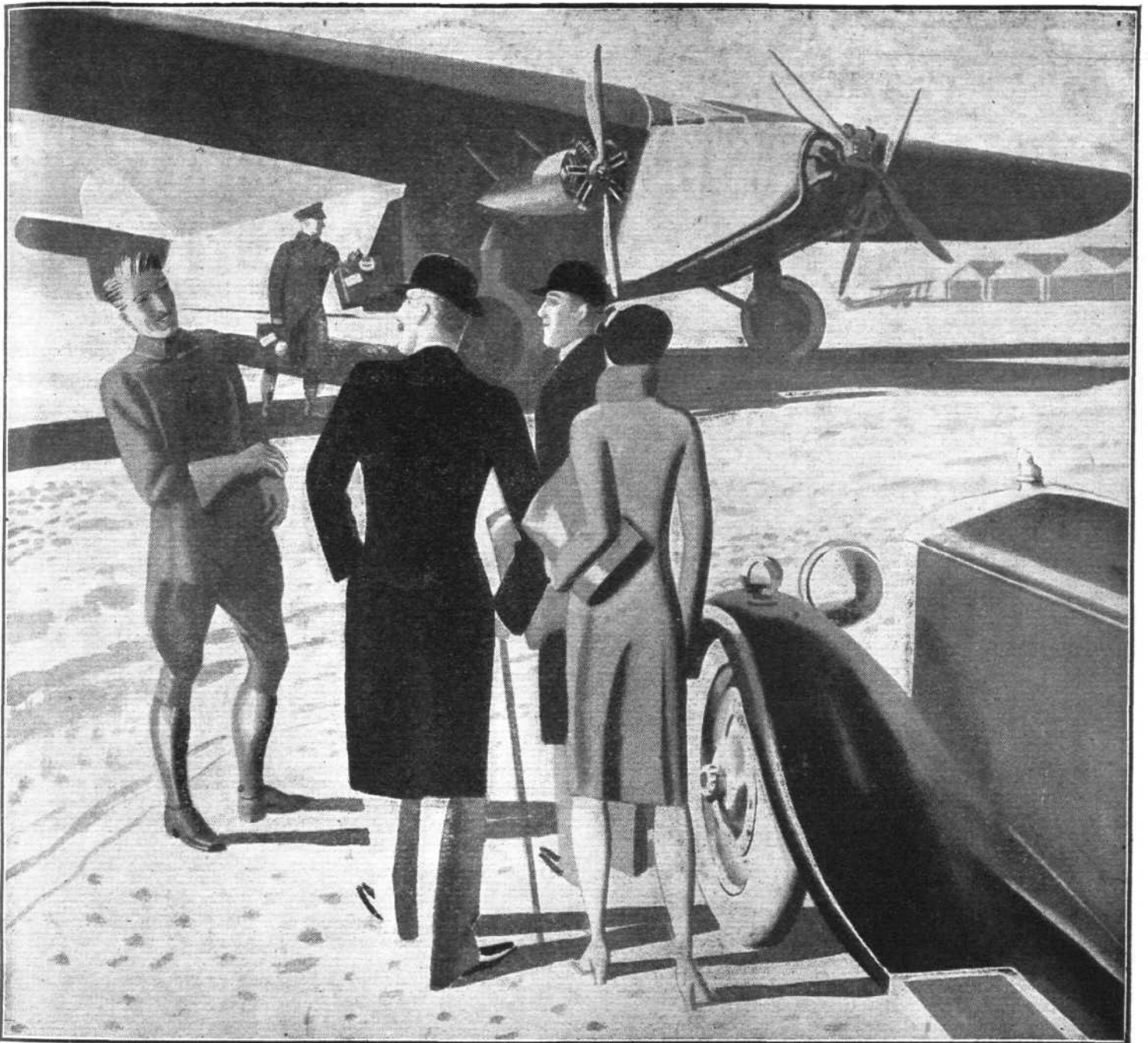
The school has acquired another Mk. II Moth G-EBVC, to help cope with the increasing number of pupils.

## Mr. H. R. Law's Set-back

THE first attempt at a big flight by a member of the Cinque Ports Club started on Tuesday, September 24, when Mr. H. R. Law took off from Lympne for Bombay, in his Cirrus Moth G-EBYJ, fitted with long-distance petrol tanks. Mr. Law intended to reach Pisa, Italy, the first night. He took off early, and quickly, in spite of an absence of wind and the heavy load he was carrying. The weather was exceedingly bad, with wide fog belts over Northern France. It was, in fact, so bad that the aircraft on the Airways were unable to take off from Paris, and the morning London-Paris Imperial machine landed at Lympne to await better conditions. Mr. Law passed over Paris above the fog, and was only able to see the top of the Eiffel Tower sticking out of it. After 4 hrs. 30 mins. flying, he estimated he was

near Lyons, where he intended to refuel, and descended to check his position. He decided to land and ask where he was, and found what looked a suitable field. As he was approaching it, down wind, with the intention of examining it before turning round and landing, he opened up his engine, which suddenly choked and stopped, and he was compelled to make a landing in the field, down wind, which he did successfully. Unfortunately, there was a deep ditch running right across the field, and his wheels dropped into this, tearing off the undercarriage and breaking the bottom longerons. Mr. Law then found that he was at a place called Ambert, 25 miles east-south-east from Lyons. Had he continued on his course he would easily have reached Marseilles with plenty of fuel in hand. He had, up to the time of the accident, averaged just over 100 miles per hour for 450 miles.





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# AIRCRAFT BRAKES

## A Brief Description of the Lockheed Hydraulic System

If the old 'bus had been fitted with brakes, I could have pulled her up in time," said the first-solo pupil. "Ah!" replied the technical-minded club member, "the braking of aircraft is not such an easy problem as it seems."

"Umph!" added the instructor, "Brown did not appear to find it very difficult; anyway, it will be some days before the old 'bus is out again!"

As a matter of fact, the provision of brakes on aircraft is rather a problem—and one, apparently, that so far has not received the serious attention of designers. Brakes have, of course, occasionally been fitted to certain aircraft, but more often than not it has been little more than a crude, simple application. Recently, however, the problem has been taken up a little more thoroughly, both in this and other countries.

For instance, the Automotive Products Co., of 3, Berners Street, London, and Leamington, the European manufacturers and licencees of the Lockheed hydraulic braking system—which has been used with such remarkable success on motor vehicles in America and Europe—have turned their attention to the application of this system to aircraft.

In doing this, they have not merely "fitted" the car brake to the aeroplane, but they have thoroughly investigated the requirements and conditions involved as regards aircraft and designed a braking system, or systems, employing the Lockheed principle accordingly.

We propose this week to give our readers a description of the Lockheed hydraulic braking system, together with a brief outline of how it can be applied to aircraft. Later, we hope to give a detailed description of the Lockheed aircraft brake as actually fitted to a machine.

At the outset it should be noted that the Lockheed hydraulic braking system possesses several advantages, especially as regards its application to aircraft, which may be enumerated as follows:—There is an entire absence of "lost motion"

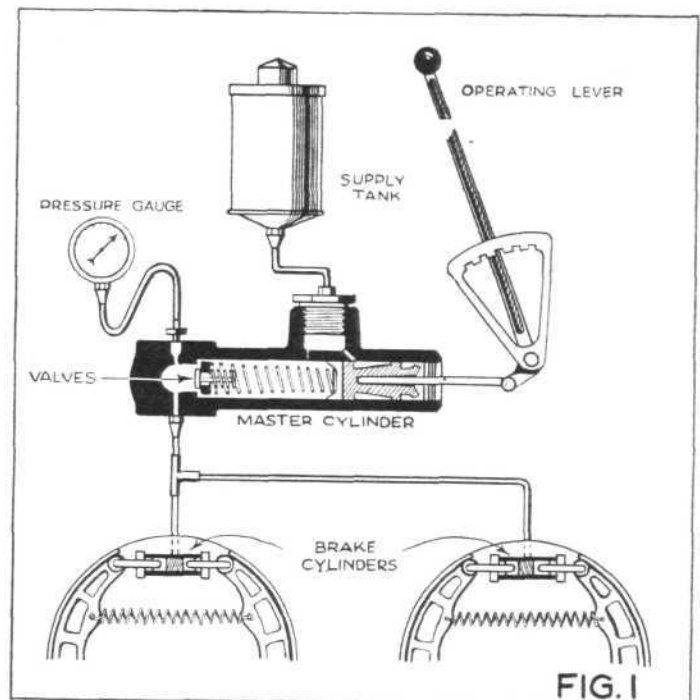


Fig. 1. Diagrammatic sketch of the Lockheed system

(in the power transmitted) from the point of application to the brake-shoe tips. This is in contradistinction to all mechanical systems which use cable or pin joints, levers, etc., the former stretching and the latter developing wear and play.

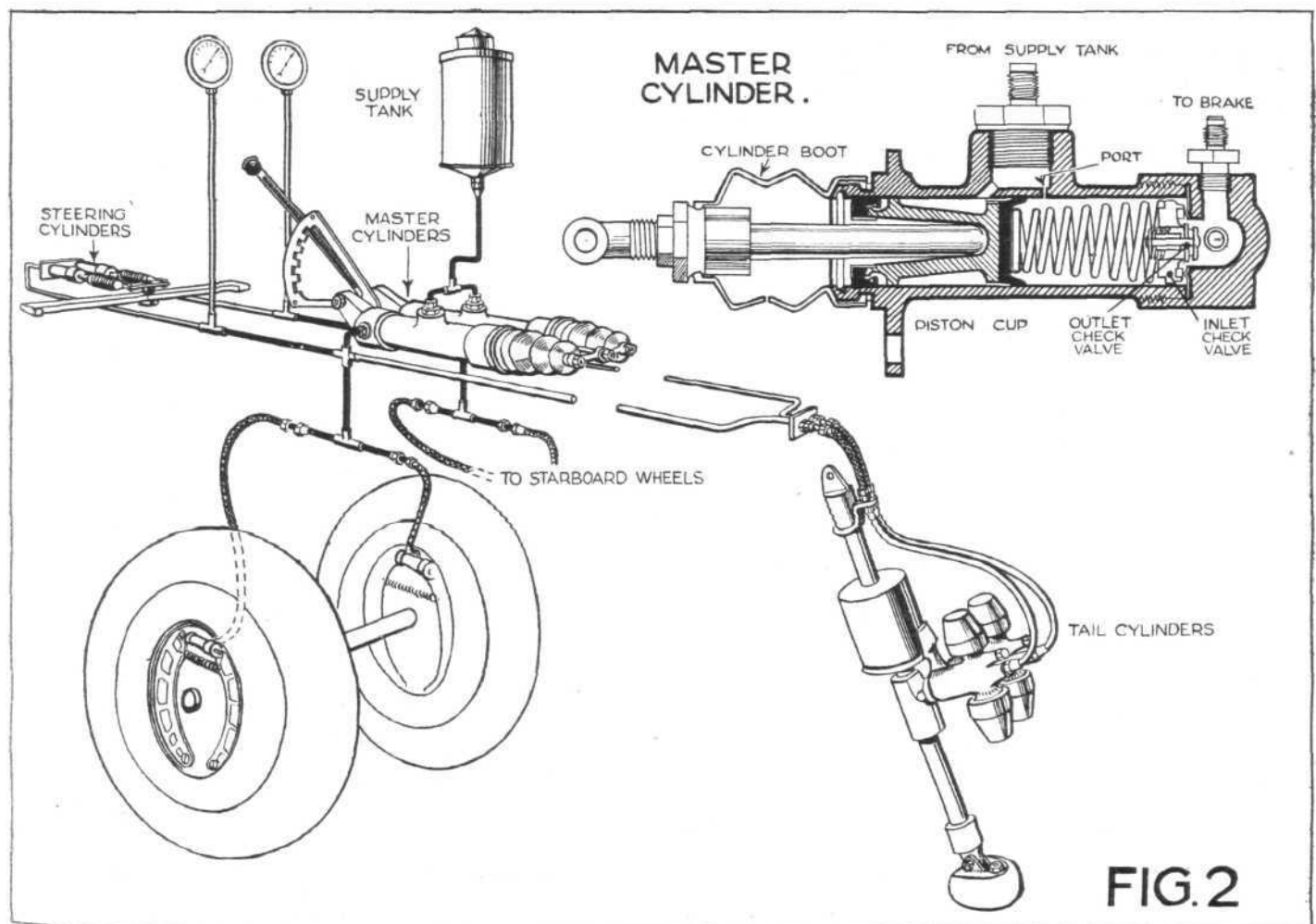


Fig. 2. Diagrammatic layout of the Lockheed Hydraulic Brake system as applied to aircraft.



The initial effort applied at the point of application is transmitted without frictional loss to the brake-shoe tips.

All reactions (except that at the initial point of application) are balanced and self-contained, in contradistinction to the usual mechanical type, which needs some intermediate stay or support, situated at a mid-point, to sustain the reaction caused by the "pull" of the operating rod or cable.

The high overall efficiency of this system, it is claimed, exceeds that of any mechanical system, and the operating medium, being a column of "incompressible" fluid, is not subject to the variations which are noticeable with the pneumatic type of operation. By virtue of this high overall efficiency, the necessity for servo shoes, toggle operation, and other devices for increasing braking power is obviated. The Lockheed Co. say they have definitely abandoned the use of Servo self-energising shoes, owing to their uncertainty in action and liability to "grab" and chatter.

By reason of its operating principle, this Lockheed brake system is inherently balanced, and perfect compensation between all brake shoes is achieved.

Finally, for very heavy machines the patented tail-skid application is able to provide adequate power, which is provided in a steady and non-fluctuating manner. The human element (with its variable efficiency) is eliminated; the pilot is relieved of all manual effort and responsibility. The calculated braking effort is able to approach very closely to the maximum permissible, as it is impossible to overturn the machine with this system, for the brakes are released as soon as the tail skid ceases to make contact with the ground.

It will be understood that owing to the cam action (see Fig. 3), irregularities caused by the tail skid operating on bumpy ground do not affect the even working of the brakes.

Now to explain the principle of this system, which depends on the well-known law of hydraulics—the transmissibility of fluid pressure, first enunciated by Pascal; that is, "pressure exerted upon any portion of a fluid is transmitted equally to all surfaces." Thus, a pressure applied to a column of liquid constrained in a suitable pipe is transmitted without loss throughout its entire length; also, assuming that the column of fluid is branched into a series of pipes, the transmitted pressure will be equal at the end of every one of the several branches.

How this principle is employed in the Lockheed braking system is shown in the accompanying diagram, Fig. 1. Here pressure is applied—by a lever, pedal, or other means—to the liquid through the medium of a piston in the "master cylinder"; the piston acting against a spring, and the liquid in the cylinder being drawn from a supply tank.

When pressure is applied to the piston, the liquid in the master cylinder is forced through the outlet check valve (which is spring-loaded) and through a system of piping to the brake cylinders on the wheels. The brake cylinder is fitted with opposed pistons, the stems of which are connected to the brake-shoe ends direct. The fluid, under pressure from the master piston, enters between the opposed pistons, forcing them apart, and thus operating the brake.

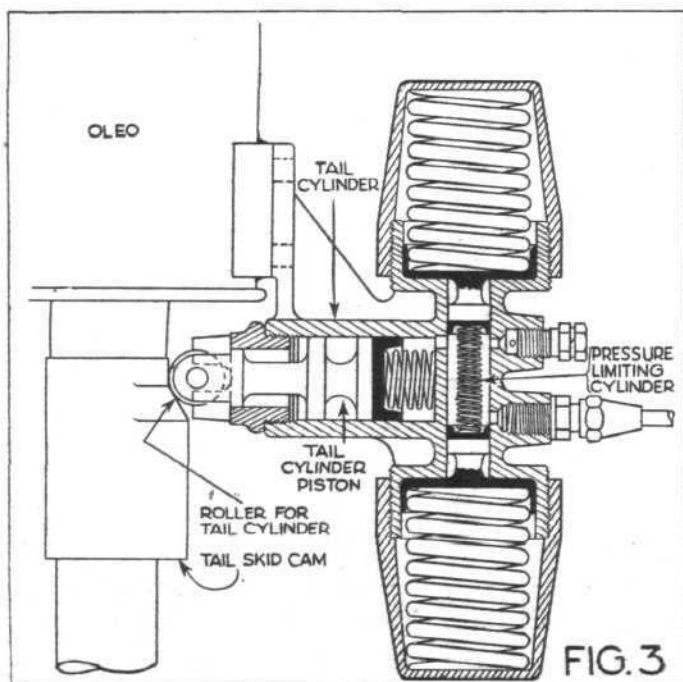


Fig. 3. Tail skid cylinders and cam operating system.

When pressure on the master piston is released, its spring forces it back to its "off" position, and at the same time the brake cylinder springs force the fluid back through the piping and into the master cylinder via the inlet check valve until the fluid pressure balances that of the master piston spring, which then closes the inlet check valve.

It should be noted that, assuming the area of the master and brake-cylinder pistons is equal, the force applied to the master piston is delivered equally by the secondary or brake pistons. It is possible, however, by suitably proportioning the area of the master piston relative to the area of the secondary pistons, to obtain a hydraulic advantage or "step-up"—a very important feature. Also, should, for any reason, the return of fluid be insufficient to equal the displacement caused by the return of the master piston, a vacuum is created in the master cylinder, allowing additional fluid to by-pass from the supply tank into the master cylinder via the flexible cup on the master piston (see detail sketch of master cylinder on Fig. 2).

This, briefly, is the principle as in use on some 3,000,000 motor cars. In its application to aircraft, the same principle is employed, with certain modifications to meet the special requirements peculiar to aircraft—such as automatic braking, independent braking, etc.

Fig. 2 is a purely diagrammatic lay-out of an aircraft braking system, employing the Lockheed principle, which embodies two or more different applications—to suit various requirements. In one of these, duplicate independent braking systems are used for port and starboard wheels, each system being a complete self-contained unit comprising master cylinders, wheel-brake cylinders (port and starboard), pressure gauges, supply tank, etc., connected by the necessary piping (shown black in our diagram in so far as this first application is concerned).

Normal actuation of the brake is provided by a lever, fitted with a locking ratchet, situated at any convenient point in the cockpit; this lever operates the master pistons through the medium of a swinging compensating bar (means for the locking of which is also provided) which gives equalised braking for port and starboard wheels.

When unequal braking effort is desired, that is for steering, etc., the above lever is applied lightly, taking up all clearance in the system and bringing the brake shoes into light contact with the drums, and locked by the ratchet. A second steering lever (situated alongside the other lever) is then brought into action, which acts on one extremity of the swinging compensating bar, thus increasing the pressure applied to one master cylinder and proportionately decreasing that in the other, and *vice versa*, according to how the steering lever is operated. This difference in pressure is, of course, transmitted to port and starboard wheel-brakes respectively.

There are two variations of this arrangement, one in which the brakes are automatically applied by the tail skid of the machine, and the second in which steering or independent braking is accomplished by means of the rudder bar. The lay-out previously described now only needs the addition of extra operating cylinders, for the tail skid and rudder bar respectively—and, of course, the necessary piping for same, all of which are shown in Fig. 2. In this alternative arrangement, a duplicated system (as before) is used, and a further pair of cylinders are located in the tail, and are operated by the movement of the tail skid; but a proportion only of the power available is used.

The tail cylinders (shown in Fig. 3) are operated by a cam mechanism in such a way that when the skid makes first contact with the ground it lifts a roller actuating the tail skid piston; any further movement of the skid, however, causes the roller to ride idly on a flat portion of the cam and no further motion is transmitted to the piston. This serves to damp out any irregular action due to bumpy ground.

As in the previous arrangement, the master cylinders are controlled by a ratchet lever in the cockpit, while for steering purposes a small pair of cylinders, actuated by the rudder bar, are added, one in each "circuit" of the complete system.

The operation of this arrangement is as follows. When the machine is taxiing on the ground with the tail skid down, the lever in the cockpit is placed in the "off" position, so that the fluid in the tail skid cylinders is displaced into the master cylinders and no pressure is present in the system. When taxiing and steering the lever is lightly applied, taking up clearance in the system, and operation of the rudder bar cylinders increases the pressure in one circuit and decreases the pressure in the other, and *vice versa*.

In using the tail skid cylinders when landing, the lever

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is set to take up clearance in the system, so that the fluid is displaced from the master cylinders into the tail skid cylinders. Thus compensated braking on the wheels is obtained when the machine lands and the tail skid touches the ground.

Again, if it is desired to "run-up" the engine (when the machine is at rest) and hold the machine against the engine thrust, the lever in the cockpit is applied and locked

in the ordinary way and the wheel brakes thereby applied.

In conclusion, we should mention that a very simple application of the Lockheed system is also in use, consisting only of two small cylinders (with supply tank) operated direct from the rudder bar, by pedals, and connected with the wheel brakes; these cylinders are independent or non-compensated, or, if desired, they can be compensated.

## AEROPLANE TYPES

### The Piaggio "P-9"

THE "P-9" is a light touring high-wing monoplane constructed by the well-known Italian shipbuilding firm of Soc. Anon. Piaggio and Co., of Genoa, which firm also constructs Dornier machines under licence. It has a cabin fuselage, accommodating two persons in tandem, and is fitted with a 75-80 h.p. "Cirrus II" engine.

*Wings.*—Of fairly thick section, with wood construction covered with fabric. They are in three units, comprising a short centre-section forming the top of the fuselage and cabin-roof, and two outer sections attached to the latter.

and large side windows, provide a fair range of vision. Access to the cabin is by means of four doors, two on each side of the fuselage. The seats are arranged in tandem, the pilot's being in front. Dual control is, however, provided, and the rear controls can be disconnected from the front ones when desired.

*Undercarriage.*—This is of the "V"-cum-divided straight-axle type, the axle being hinged at the centre to a pyramid of three struts, two going to the lower side longerons of the fuselage (where the front struts of the side V-members are



THE PIAGGIO "P-9": An Italian light touring monoplane fitted with a 75-80 h.p. "Cirrus II" engine.

The wings are externally braced to the fuselage by two sloping steel-tube struts on each side of the fuselage—the attachment to the latter being on the bottom longerons. Short vertical struts also extend up to the wing from the centre of the main bracing struts. Control surfaces are unbalanced and the tail unit is also of wood and fabric construction.

*Fuselage.*—Of wood construction, with ply-wood covering. It is of rectangular cross section, very deep at the cabin section and tapering sharply thence to the tail; the engine section, however, is not very deep, and so the view forward is obstructed as little as possible. Sloping windows, extending from the engine cowling up to the top of the cabin in front,

attached), and the third to a point slightly forward and in the centre of the fuselage bottom (at the rear engine-section transverse member). The outer ends of the axle are carried by the apex of the side V-members, the front struts of which embody a rubber-block-in-compression shock absorber.

If desired, a float undercarriage may be fitted in place of the wheel type.

*Power Plant.*—While the engine fitted in the machine shown in our illustration is a 75-80 h.p. 4-cyl. in-line air-cooled "Cirrus II," the P-9 has been designed to take any type of engine of 60 to 150 h.p. Petrol is supplied to the engine by gravity feed, from a tank in the right-hand wing root.



A well-tried favourite in a new guise—The Westland Widgeon Seaplane.

## AIRCRAFT FUELLING

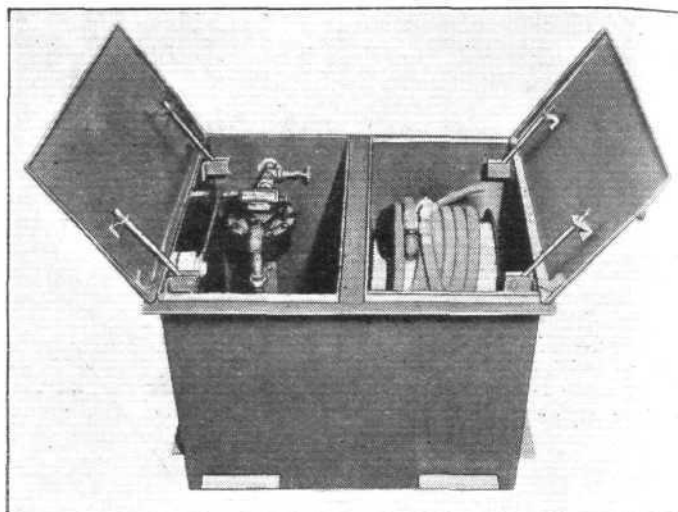
**A**N interesting new fuelling system, which although common in the U.S.A. has not been so far much used in this country, has been installed at the Hythe works of Supermarine-Vickers, Ltd.

So far the ordinary pump installation has consisted of the pump situated at the side of the aerodrome with, in most cases, a large swinging arm for the hose. This method has many obvious disadvantages such as the liability of the aircraft fouling either the pump or the hose when taxiing and also having to taxi possibly the whole way across the aerodrome before reaching the fuelling station.

The method which Bowser & Co. have installed at Hythe obviates many of these difficulties. It consists of a metal pit which is sunk flush with the surface of the aerodrome at whatever is the most convenient point for servicing the aircraft. This pit contains a 50-ft. length of steel lined hose which allows a 50-ft. servicing radius. The fuel is supplied from the usual buried tank situate where convenient and pumped by an electrical pumping unit. The pump is remotely controlled from the pit and when switched on it passes the fuel first through a centrifugal filter and an air release and then a bye-pass valve which allows the pump to be run even when no fuel is being taken from the pit. In the pit an Exacto meter operates on the volumetric displacement principle, is extremely accurate and all the fuel passes through this before reaching the hose. A pistol grip nozzle on the end of the hose allows the hose to be kept full of fuel when not in use and obviates draining, the fuel supply being controlled at the nozzle.

In the case of the Hythe installation it has been found

necessary to have the pit somewhat above the surface as the wash of passing steamers is liable to flood the slipway where it is placed. Our photo shows a Supermarine Southampton being fuelled with this outfit.



The Bowser metal refuelling pit, and a Supermarine Southampton filling up from the new Bowser pit at Hythe.



#### Northern Air Lines

NORTHERN AIR LINES have reduced their passenger rates for "Air Taxies" by 33½ per cent. per mile. The fare for one passenger will now be 10d. and for two or more, 9d. per mile each person. This has been made possible as owing to the popularity of the "Air Taxies" the number of hours previously estimated for one year has been exceeded by over 100 per cent., though the company has only been working six months. The public have patronised the service so well that the estimated allowance for "overheads" has been drastically reduced and this advantage is to be shared with the public. It is felt that the reduced prices will lead to still more business and that further reductions may be possible next year. It is believed that the new rates are the lowest charged by any firm for the hire of private passenger "Air taxies."

#### S.M.A.E. Visit to Croydon

THE Society of Model Aeronautical Engineers have arranged an interesting visit to the works of the Desoutter Aircraft Co., Ltd., at Croydon, on Saturday, October 26.

The party, which will be limited to 30, will leave Victoria Station by the 2.18 p.m. train, arriving at Croydon at about 3 p.m. They will then inspect the enclosed three-seater Desoutter monoplane, and the works, after which they will make a tour of Croydon Airport. Members of the S.M.A.E. and affiliated clubs may bring one friend each. Tickets for this visit, including fare, tea, and tour of the Airport, are 3s., and may be obtained from the Secretary, S.M.A.E., 64, Victoria Street, S.W.1, but applications must be made not later than October 20.

#### Know Your Aerodrome!

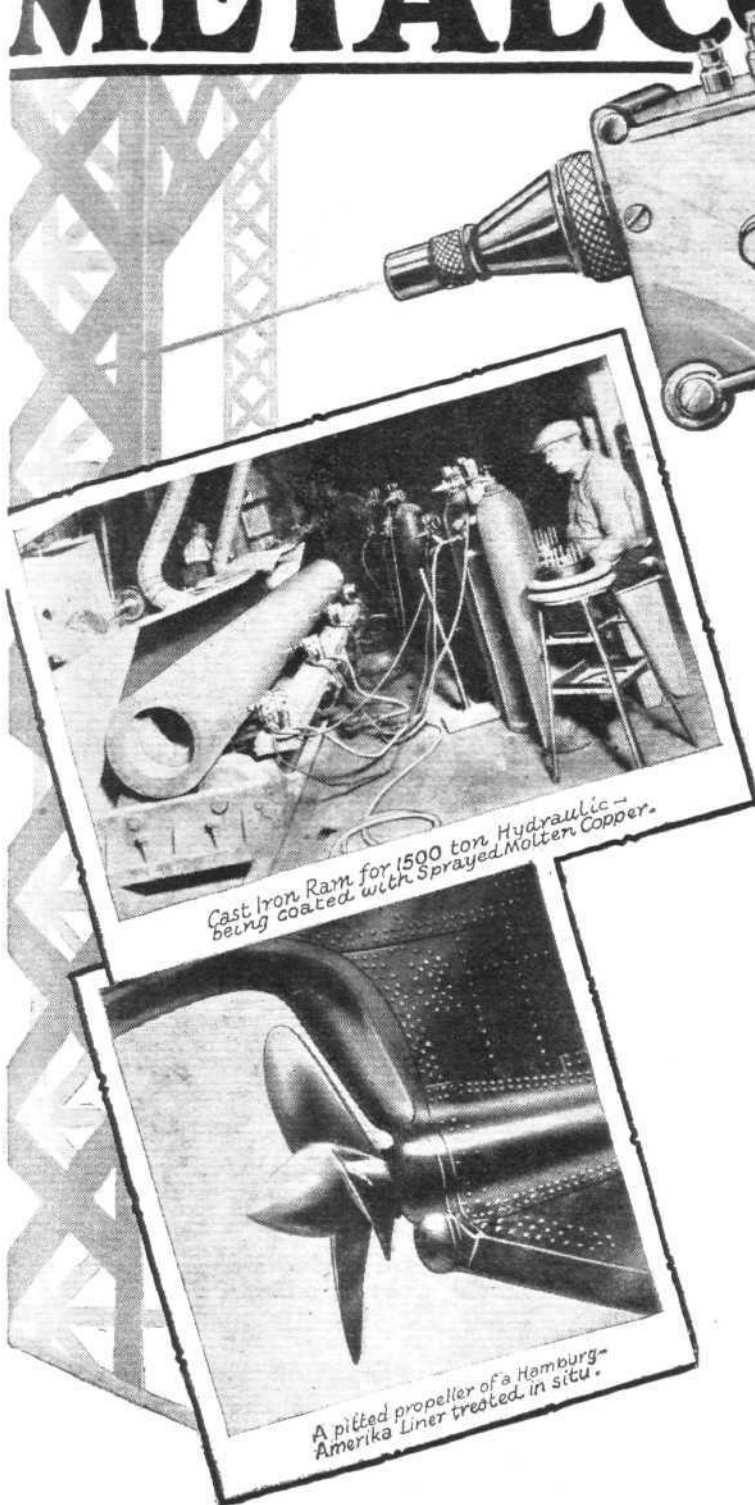
We are taking a series of aerodrome photographs. These will be taken from the air and should prove of very great value to club members and prospective pilots in enabling them to see just what their aerodromes are like when viewed from above. Copies can be obtained from this office at the usual rates, and the list of those available will be published from time to time. Those we have taken to date are:—Desford, Filton, Hadleigh, Hanworth, Sywell, Whitchurch.



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## N.F.S. Membership now embraces four Clubs

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Members of N.F.S. are entitled to the use of each club-house, and free landing at all the N.F.S. stations, wherever such units may be established. At every provincial Air Park there will be a comfortable club-house, hangars and workshops, and lock-up garages for members who keep their own machines. A normal complement of four light aeroplanes will be kept constantly in commission for training members of the club, for hiring out to members, for joyride flying, and for taxi service and commercial flying generally, and this establishment will be increased when the demand justifies it.

A limited number of members are now being enrolled at the following favourable rates:—

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Reduced rates are available for "Life," "Family," and "Overseas" membership. No entrance fee is payable by Serving Officers of H.M. Regular Forces, nor by Members of the Corps Diplomatique.

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# ANNUAL REPORT OF IMPERIAL AIRWAYS, LTD.

THE Fifth Ordinary General Meeting of Imperial Airways, Ltd., was held on September 25, at the Hotel Cecil, the Rt. Hon. Sir Eric Geddes, Chairman of the company, presiding. The chairman, after referring to Lord Chetwynd's and his own retirements, proceeded to deal with the accounts, etc., of the company.

It would be seen from the accounts, said Sir Eric, that there was a further substantial improvement in the position of the company, both from the balance-sheet and the trading point of view, which was somewhat better than might at first appear, as he would explain later. Aircraft and engines, less cost of units written off or otherwise disposed of, stood at about £225,000. No depreciation was allowed for, because the physical depreciation was taken care of under "maintenance," and obsolescence provided for on the other side of the balance-sheet.

No new aircraft were brought into service during the year under review, but there was an item of about £64,000 for progress payments on aircraft under construction. One of these was a new flying-boat for the Mediterranean section of the India service, and the remainder were ordered under the normal construction programme for replacement of obsolescent units; they were now in commission and were being worked on the European services this summer.

"Premises, lease, plant, etc." had increased from about £43,000 to £47,000. Of the additions during the year £11,000 odd was accounted for by the purchase of a motor depot and salvage ship and other equipment for the Mediterranean Division. This ship was stationed at Crete. Depreciation of the remainder of this item was allowed for adequately.

The slight increase in "Stores, spare parts and tools," from £57,000 to £60,000 odd represented part of the cost of the inauguration of the Mediterranean Division. The "Sundry debtors" showed an increase over last year of about £9,000 due to the increased turnover, while "Cash and investments" (including the obsolescence reserve of £111,000) amounted to over £270,000.

It was gratifying to notice, continued Sir Eric, the disappearance of three items of preliminary expenses, underwriting commission, and inauguration and survey expenses, amounting in all on last year's balance sheet to over £26,000.

The last item of £25,000 was in respect of the 25,000 deferred shares issued to the Air Ministry in consideration of the Company's complete release from all obligations to repay any subsidy, and as a condition of the grant of the increased subsidies now enjoyed.

The board proposed to provide for the amortisation of this amount during the next ten years—the period of their new main agreement with the Government, which came into force at the commencement of the current year.

On the liability side of the balance-sheet the only material change was the issue of these 25,000 shares, and an increase of about £16,000 in "Sundry creditors" was due to increased turnover, and to the inauguration of the India service.

The reserve for obsolescence amounted to £111,000, of which £36,000 was attributable to the year under review.

The profit for the year, said Sir Eric, amounted to nearly £79,000, almost 10 per cent. improvement over last year. This was really better than might at first appear, as before arriving at the profit figure they had not only cleared the £6,043 outstanding inauguration and survey expenses appearing on the last balance-sheet, but they had also liquidated the whole of their development expenditure incurred in the year. The abnormal expenditure under these heads was approximately £12,000; also, owing to the incidence of payment of subsidy, these accounts contained £4,500 less under that head than in 1927-28, whereas they had on the other side abnormal credits of about £6,000.

Turning to the profit and loss account there was a gross profit on the trading account of £140,000 as compared with £132,000 for the previous year. As there was no extension in the magnitude of the company's operations during the year (the India service did not come into being until this current year), this was satisfactory.

On the other side of the profit and loss account the "Directors' fees" had increased from £5,500 to £7,000 per annum. This was due to special missions and duties undertaken by directors in connection with extensions of services in India and beyond.

The Aviation and General Insurance amounted to about £12,000. The proportion of this which belonged to the insurance of the fleet amounted to a premium of slightly over 3 per cent. of the cost value.

The obsolescence allocation for the year of £36,000 was some £4,000 lower than last year's figure. This decrease was due to certain aircraft having been sold and others written off during the year under review, but represented a normal rate.

The question of obsolescence, and its companion item "New Construction," was one which had received very close attention, and Sir Eric wished to emphasise the fact that, from every point of view, it was desirable that this item should have a certain degree of conservative flexibility. In following the principle that larger aircraft were more economical to operate than the smaller ones, they were moving step by step to larger and initially more costly units when traffic prospects justified it. The additional cost of operating these large craft, of course, showed itself on the expenditure side of the trading account immediately they came into commission, while the additional revenue which they were capable of earning did not suddenly materialise, but grew gradually. Put more concisely, an aircraft operating on a regular air line would earn more revenue in the latter half of its obsolescence period than in the first half. When they were able to do so, therefore, it was highly desirable to place a larger amount to Obsolescence Reserve than a normal figure, and during the years when the traffic was building up to the capacity of the newer larger units the allocations for obsolescence could therefore be equated out of reserve. It was for this reason that the board had placed this year an additional sum of £20,000 towards the obsolescence reserve.

Developing and extending with such a high rate of obsolescence as was necessitated by the continuous improvements in air transport, they had in a pronounced form to meet that problem, and were, in fact, then commencing to provide for obsolescence on aircraft not yet built. Nevertheless, their obsolescence position may look good, as even without the £20,000 reserve they had £111,120 in the fund against a cost price of their fleet of £224,790.

"Thus," proceeded Sir Eric, "The balance of profit with the amount brought forward is nearly £83,000. Out of this we have placed to obsolescence reserve the additional sum of £20,000, to which I have just referred; the balance of preliminary expenses and underwriting commission, amounting to over £20,000, has been extinguished altogether."

"We recommend the payment of 7½ per cent. dividend, which will absorb £35,558, leaving a sum of £6,688 to carry forward, some £2,600 more than was brought forward. This result, ladies and gentlemen, is attained, as I have shown you, upon less subsidy, and after we have cleared our balance-sheet of all inauguration expenses and of all survey and development expenses to date I am sure you feel as gratified as does your board with these results."

Sir Eric said he was pleased to report a still further improvement in the rate of traffic increase on the European services, and traffic revenue for the

year under review had increased by 29½ per cent. compared with the previous year. In fact the turnover of the European services had more than doubled during the three years commencing March 31, 1926.

In the Near East the results were also satisfactory, as the traffic revenue on the Cairo-Baghdad-Basra service had increased by 48 per cent., compared with the previous year. This service was now a part of the England-India service, of which it formed an important link.

The first turning point in the economics of commercial aviation was reached some two years ago when, for the first time, they earned a gross profit on the prime costs of operation.

It was interesting to see how the actual services operated compared with their minimum obligation to the British Government. In Europe, in order to earn their subsidy, they were required to fly an annual minimum mileage. Actually they had flown in 1928-29 94 per cent. more than that minimum required, so that they had carried out nearly double the services required to earn the subsidy. He thought they could safely say, therefore, that the British taxpayer was getting value for the money he paid as subsidy. It was, of course, to their advantage to fly those extra miles so long as they could be run at a gross profit, and they did not do otherwise. This meant that step by step, they were getting nearer and nearer towards being independent of subsidies.

This non-subsidised flying was not confined to Europe, and the Near East service supplemented its revenue by flying 12,500 non-subsidised miles in Palestine and Iraq, compared with 6,700 miles in the previous year.

To sum up the statistics of traffic and operations for the year, Sir Eric stated that aircraft had flown 1,032,842 miles, and 34,757 paying passengers and 873 tons of mail, freight, and excess luggage had been carried. Of the capacity provided, 74½ per cent. had been filled with paying traffic in Europe and 61 per cent. in the Near East, and of the services scheduled in Europe 92·85 per cent. were completed, although the weather conditions were probably less favourable for flying in Europe than anywhere else in the world. The regularity achieved on the services in the Near East was 99·37 per cent.—they lost their goal of 100 per cent. because severe dust storms prevented them from flying to schedule on certain sections on three occasions. They must, however, expect some fluctuation in their progress. During this current year, for instance, travel in general all over Europe had not improved at the expected rate, and in many cases had fallen; but the prophets predicted an improvement in the figures for next year.

For the fourth year in succession regular services were free from accident involving injury of any kind, and it was with the deepest regret and sympathy that he referred to that wonderful record being marred in the fifth year. No transportation company could expect to be entirely free from accidents, but any thing that skill and forethought could do was devoted to upholding their really wonderful record of safety.

Regarding the fleet, continued Sir Eric, they had followed their previous practice of giving at the back of the report a list of their fleet, and this showed some changes from last year. As had been stated in the Press, they had ordered eight of the largest aircraft ever built for regular commercial services, and those who had seen the full-sized model of the cabin of this aircraft in the recent exhibition at Olympia, could not fail to have been impressed by the greatly improved standard of comfort.

Some of these planes were for the European services and some were for the India service. They would be fitted with four engines with a total of 2,000 h.p. and would be capable of carrying about 40 passengers in addition to the crew. These aircraft should show a remarkable advance in the development of aircraft design, efficiency and comfort.

Sir Eric next dealt with the England-India service and the projected development of it. This service was inaugurated at the end of March, 1929, in accordance with the pre-arranged programme, and had been working with remarkable regularity since then.

Few people, he thought, appreciated fully what this line had meant in the way of organisation. It was the longest organised air route in operation in the world, its length being almost 5,000 miles, 1,890 miles of which were operated by marine aircraft across the Mediterranean Sea. The service operated over 10 different countries, speaking seven or eight different languages and utilising nine different currencies. He thought they ought to congratulate the staff at home, who carried through the planning, training, and construction programmes, and the staff overseas who had so thoroughly carried out the operation of the service—especially the pilots.

He also wished to pay a very warm tribute to the Air Ministry for the support and assistance they had given in the arrangements which had been concluded with foreign Governments on the route; and to the staff of both the Air Ministry and the Royal Air Force for their invaluable assistance, particularly in regard to the ground wireless chain and the meteorological organisation.

During the recent disturbances in Palestine the Royal Air Force in Egypt and Palestine had given invaluable help, which had enabled them to continue the service with little deviation from schedule.

Turning to the commercial side of this service, Sir Eric stated that the traffic to which they looked to produce their most profitable and constant source of revenue was mails, not only on this India route but elsewhere. While the growth of mail traffic on the India route was steady and continuous it was not increasing as rapidly as had been hoped. They felt that, in spite of the substantial sums that had been judiciously spent on advertising, and the generous support of the Press, the service was still not common knowledge to the general public, and he urged every shareholder to use his or her personal endeavours to preach as well as practise the "Air Mail" habit.

As regards passenger traffic, it was in its infancy on the route from England to India, and they did not pretend to have *de luxe* accommodation. The provision of good ground accommodation for passengers was a problem which could only be solved progressively. At present it was frankly not luxurious, but until night halting places were permanently fixed and the route finally selected, with security of tenure, it would be folly to sink capital in buildings in the desert or down the Persian Gulf or through the African Equatorial forests. Night flying or a change of schedule or route might make such accommodation useless, and we could not afford that loss.

At the present time the schedule for the service from London to Karachi was 7½ days. By gradual improvements in ground organisation this time was going to be systematically diminished until, by perhaps another year or so, they hoped to have a five-day schedule to Karachi, which, with satisfactory air connections across India, would mean a little over six days for Calcutta to be reached. The more they are supported by the public the quicker they could attain this goal.

With regard to the extension of this India service, it was, said Sir Eric, the aim of the board to continue the line all the way to Australia, and in this connection they had been negotiating with his Majesty's Government in India for the operation of a service between Karachi, Delhi, and Calcutta.

The negotiations with the Government of India were inconclusive so far as a permanent service was concerned. They had, however, offered to charter to that Government aircraft for a service between Karachi and Delhi, and possibly on to Calcutta, on a temporary basis for a period of two years, to



connect with the England-India line, and they hoped that this offer would be of service while the Government of India was shaping its civil aviation policy. The board was already in correspondence with the Government of Australia and the Home Government on the subject of the continuation of the line from India to Australia.

Concerning the Egypt-South Africa service, the board had negotiated to its concluding stages an agreement with his Majesty's Government here, acting with the Governments of South Africa, Kenya and Uganda, Tanganyika, Sudan and Rhodesia, for the operation of a service between Egypt and South Africa. This now awaited final ratification. In this venture they were fortunate in having associated with them the Cobham-Blackburn Air Lines, Ltd., and they will have the benefit of the counsel and experience of Sir Alan Cobham and his colleagues, who, will join the board of the subsidiary company which was to be formed to operate this section of the route.

It was planned that the northern half of this line, from Egypt to Lake Victoria Nyanza—serving Upper Egypt, Sudan, Uganda, Kenya, and Northern Tanganyika—would be commenced, all being well, about this time next year, and the southern half as far as Cape Town was planned to commence about six months after the northern section.

"I should like," said Sir Eric, "to make a few remarks which will bring home to you the extraordinary magnitude of these operations that we are now forecasting. We are estimating now for a weekly service as far as Australia and a weekly service as far as the Cape. If you take the next six years on the programme upon which we have tendered we shall spend in revenue expenditure on running the line—nothing to do with capital—£8,000,000 sterling. That shows the magnitude of the undertakings which we are now negotiating with the Government. I think that probably brings home to you better than any other figures what an enormous business it has now become.

"I think that it will be of interest to the shareholders if I deal a little with the question of civil aviation past and future, and in certain respects our position *vis-à-vis* other countries. It is true that at the present time with our subsidies, we are showing profits, but we have not got these subsidies in perpetuity, and our objective is to make civil aviation, independent of subsidy, a commercial success.

"We have reached the stage with our fleet, broadly speaking, when we can fly any of our aircraft with a reasonable load and at reasonable rates of charge at a gross profit without subsidy. By gross profit I mean provided it is not debited with full obsolescence and full overheads.

"We are also gradually extending until those who use our services are induced to pay our charges more on account of saving of time than for actual transportation. It is well nigh impossible to find out how foreign companies are progressing financially. It is indeed difficult to compare the assistance in cash or kind which is given to foreign companies; for instance, in Germany the German company receives subsidies from the German Government and a number of municipalities separately. In America there are very few, if any, direct subsidies, but mail contracts are given on tender and the service performed is not paid for in full by the user, but by the postal authorities, who operate air mails generally at a substantial loss."

As regards air mails, Sir Eric pointed out that in Great Britain we had a clear-cut subsidy, and the postal authorities retained a proportion of the air mail fees paid by the public for their own purposes. On the Indian air mail this worked out as follows:—

Post Office charge to public air mail charge and ordinary postage charge, 21s. 3d. per lb.; Post Office pay for air mail service and all charges throughout Croydon Aerodrome to Karachi, 14s. 1d.; Balance retained by Post office, 7s. 2d. This gave the following interesting result.

The Post Office would deliver a letter by ordinary mail to India for 1½d., but to hand it to Imperial Airways at Croydon Aerodrome for conveying by air they keep 2½d. a letter.

"I am making no grievance about this," said Sir Eric: "we knew it before we started the service. The Post Office have made it clear that they will adjust charges so as to make no profit as soon as the figures can be examined in the light of actual experience. We are really at their mercy, and I have every hope that in their own time they will be merciful to us. I merely mention the matter here to show the different methods which different countries have adopted in helping civil aviation. I mention it also to show you how erroneous uninformed criticism of our figures, activities, etc., may be.

"It was," he continued, "extremely difficult to obtain actual figures from other countries. It had been authoritatively stated that in Germany the German subsidies represented 80 per cent. of the German company's total revenue. In the case of Imperial Airways for the year under review for the equivalent services—that is, the European services—the subsidy represented 44½ per cent. of the total revenue."

Before leaving the question of subsidy, Sir Eric said he wished to anticipate a question which had been put outside and in the press. It was, in effect: "You show £79,000 profit—what was your subsidy?" The line of thought clearly being: "You are operating at a loss if your subsidy is greater than your profit." But such a simple arithmetical calculation was quite fallacious. If they had no subsidy they could not operate as they were doing—they could not provide obsolescence as they did provide it. What they did say was that they were steadily progressing towards commercial independence of subsidy, and they had by their main agreement 10 full years in which to attain their goal—their high obsolescence rate was designed to accelerate successive generations of aircraft each carrying them a step nearer to that goal.

Sir Eric then gave the following figures indicative of the development of Imperial Airways during the five years of its existence.

In the first year the traffic amounted to a total of 391,000 ton-miles, and in the fifth year 803,000 ton-miles, an increase of over 100 per cent. In the first year they completed 75 per cent. of the flights scheduled; this figure improved year by year until in the fifth year the figure was almost 93½ per cent.

Almost half of the miles they were flying to-day were unsubsidized. Their costs also were gradually improving, the best illustration being the all-in cost of operation equated to a common unit—this had decreased by almost one-third since the first year. Aircraft insurance in the first year amounted to 5.7d. per unit mile, and in the fifth year 1.49d. per unit mile.

They were sometimes criticised for the lack of internal flying in the British Isles. Sir Eric stated they had examined many propositions, and in none so far had they found conditions to show, in the present stage of the development of aircraft design, a service that could be profitably operated. The efficient railway services, together with the poor average flying weather and the high percentage of terminal delays, owing to the shortness of the routes, were some of the chief factors which went to lessen the likelihood of success. They examined all serious proposals with infinite care, and it might be that an attractive one would be found.

He said he was glad to see the increasing interest of the public in flying. This interest was becoming more and more of a business nature rather than that of casual interest. In saying which he had in mind the increasing use which was being made of air transport by his Royal Highness the Prince of Wales, the Prime Minister, and other members of the Cabinet, all of whom undoubtedly recognised the value of the time saved. There was also the interest taken by the aviation committees, etc., which had been set up by the International and the London and other Chambers of Commerce.

He was, he said, glad to say that their relations with all Government Departments were cordial and the relations of the company with its staff and employees were also of the happiest.

"In conclusion," said Sir Eric, "I would say that civil aviation has proved its reliability beyond doubt as the fastest means of transport in the world. We are, as a company, meeting our obligations to the Government fully and generously. We are flying nearly twice the mileage we are obliged to fly; we have been efficient in our management, courageous and enterprising in our extensions and conservative in our finance; but the Empire is still far behind other great countries in its flying activities. Far greater financial assistance is given to civil flying by other nations than is given by our country, and, yet, what a field for the quick development of civil aviation is offered by the British Empire! Quick communications develop trade. If for a comparatively small sum of money India can be brought 11 or 12 days nearer to us, South Africa eight days nearer to us, and Australia 16 days nearer to us, does anyone doubt that a rich harvest in increased trade will follow? I therefore urge the need of increased financial support for Imperial Airways, to enable it to extend and develop on its Imperial mission."

Sir Eric then moved that the report and accounts be received and adopted. Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., D.S.O., seconded the resolution which, after the Chairman had replied to questions, was unanimously adopted. The retiring director, Sir Eric Geddes, was re-elected.

## Belgian Statistics

In 1928 aircraft in Belgium carried 7,864 passengers against 6,746 in 1927. In the Congo the figure is 1,990 against 735.

## Private Owners

We regret that in the list issued last week G-AAET was put as being owned by two people. Actually this machine belongs to Mr. C. E. Horne, and Mr. B. E. Lewis has, at present, no machine registered.

## Hull Municipal Aerodrome Opening

THE Hull Aerodrome will be officially opened by H.R.H. Prince George on Thursday, October 10. The programme of the Air Pageant which will be presented on this occasion is a very ambitious one and should prove a great attraction, as the whole-hearted support of the Air Ministry has been obtained, and besides many Service aircraft there will be the full Band of the R.A.F. An R.A.F. squadron will give a display lasting about an hour. Capt. Stack will "aerobat" both alone and with his N.F.S. "Circus," Mr. Trantum will make a parachute descent and besides many other items there will be a Light Aeroplane Race. The Pageant is timed to begin at 1.30 p.m. and the official opening ceremony will take place at 2.40 p.m.

## Another "Man of Mature Years" to Qualify as Pilot

It is now learnt that there is every possibility of Mr. Bernard Shaw learning to fly shortly. He was recently reported as saying that "everyone flies these days, and why shouldn't I?" And one can imagine him at the chosen aerodrome emulating the Ancient Mariner and saying, when confronted by his instructor: "By (my) long grey beard and glittering eye, now wherefore stoppest thou me?"

In the light of these recent developments it would seem

that there may be an opening for an octogenarian flying club possibly run under the auspices of the Shavian Society.

## New Member of the Air Council

THE Air Ministry announces the following appointment dated January 1, 1930:—Air Vice-Marshal T. I. Webb-Bowen, C.B., C.M.G., to be a member of the Air Council (Air Member for Personnel), in succession to Air Chief Marshal Sir John Maitland Salmond, K.C.B., C.M.G., C.V.O., D.S.O., on the latter taking up his appointment as Chief of the Air Staff.

## Capt. Ackland Convalescent

We are pleased to be able to state that Capt. P. D. Ackland, of Vickers (Aviation), Ltd., has now sufficiently recovered from his recent illness to be able to leave the Empire Nursing Home. It is, however, not expected that he will be able to resume his duties for several weeks. In the meantime any letters addressed to him at Vickers House will be forwarded.

## Aviation at Morecambe

OVER 20,000 people watched the aviation display at Morecambe during the carnival held there on September 23.

The members of the Lancashire Aero Club, including Lady Bailey and Miss Brown, gave a very good show, although the weather was bad. At the luncheon given to Lady Bailey the Mayor of Lancaster suggested a joint municipal aerodrome scheme for Morecambe and Lancaster.

## Mycological Investigations

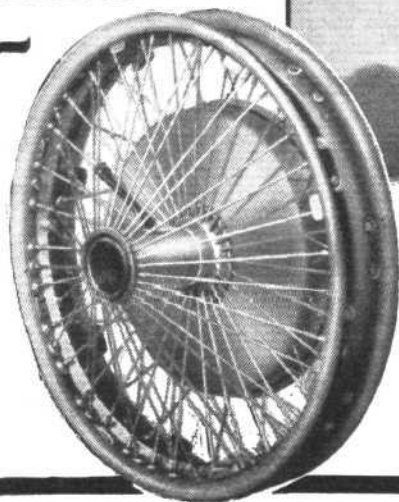
SPORES of the wheat rust have been found as high as 10,000 ft. during investigations by aeroplane in Canada, which proved that these spores were borne in air currents from the South. The average yearly damage by rust is estimated at £5,000,000, while in 1916 an epidemic raised this to £50,000,000.



**The Circuit of Europe**

Captain Broad flying a De Havilland Machine was 1st in his class and 2nd in the general Competition. During this Contest, Captain Broad made 28 landings on Dunlop Tyre and Wheel equipment without once touching the tyres.

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1929.

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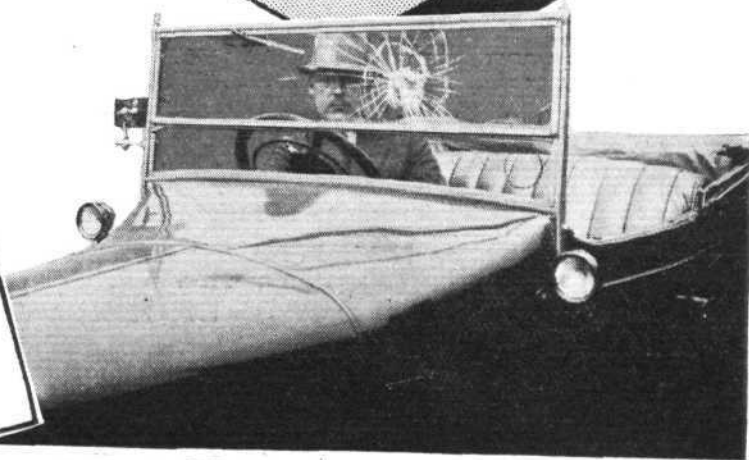
This incident occurred while the car was standing at the Hazel Grove Golf Club, and was caused by a sliced drive coming over the roof of the club house and striking the windscreen full on.

A companion of mine was at the time seated in the passenger's seat, therefore you can readily imagine that if this windscreen had been of ordinary glass, he would undoubtedly have lost his sight.

This occurrence forcibly illustrates the risk of ordinary glass in simple accidents of this nature even when the car is not actually in use and, in fact, off the road.

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# THE ROYAL AIR FORCE

London Gazette, September 17, 1929.

## Medical Branch

Flight-Lieut. J. Hill, M.B., is granted a permanent commission in this rank (September 18); Flying Officer G. T. O'Brien is promoted to the rank of Flight-Lieut. (September 8); Sqdn.-Ldr. J. H. Peek, M.D., D.P.H., relinquishes his short-service commission on account of ill-health and is permitted to retain his rank (June 19). (Substituted for the notification in the Gazette of June 21.)

## Chaplains' Branch

The Rev. C. P. N. Rowband is granted a short service commission as a Chaplain with the relative rank of Squadron Leader (September 6).

## RESERVE OF AIR FORCE OFFICERS

### General Duties Branch

The follg. are granted commissions in Class AA (ii) as Pilot Officers on probation:—P. E. Hudson (September 2); L. E. Hunt (September 4).

The following Pilot Officers are promoted to the rank of Flying Officer:—D. Price, C. R. F. Winttingham (September 14); H. St. G. Burke, R. W. Burdett, R. W. H. Knight (September 15); E. D. Mills (September 16).

Pilot Officers A. G. Douglas is transferred from Class AA (ii) to Class C (September 15); Pilot Officer H. Clive-Smith is transferred from Class C to Class AA (ii) (August 9).

The follg. relinquish their commissions on appointment to permanent commissions in the R.A.F. (September 7):—Flying Officer H. P. Fraser, Flying Officer G. J. C. Paul, Pilot Officer F. J. St. G. Braithwaite, Pilot Officer R. Harston.

Pilot Officer F. O. Tickell resigns his commission (September 9).

London Gazette, September 24, 1929.

### General Duties Branch

The follg. are granted short service commissions as Pilot Officers on probation, with effect from and with seniority of Sept. 13:—H. G. Adams, S. H. Bell, D. P. A. Boitel-Gill, J. C. L. Bruce, R. R. Chapman, L. E. Chiswell, G. B. S. Coleman, C. R. Davies, J. L. M. Davys, S. W. H. Egan, G. Egerton-Hine, T. N. Fraser, J. S. Hamilton, C. J. Hansford, J. N. Hepworth, L. M. Hooper, R. G. Hosken, N. C. Hyde, B. N. Matson, L. R. Mouatt, E. E. Noddings, R. C. Parker, I. N. Roome, K. N. Sayers, G. D. Seabourn, M. W. Simons, S. D. Slocum, J. A. MacD. Teacher, H. J. Ward, C. A. Washer, H. J. Wilson.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified:—

### General Duties Branch

*Air Vice-Marshal* H. C. T. Dowding, C.B., C.M.G., to H.Q., R.A.F., Trans-jordan and Palestine, on appointment as Air Officer Commanding, 7.9.29.

*Group Captain* C. T. Maclean, D.S.O., M.C., to H.Q., Aden Command, to command, 5.9.29.

*Wing Commanders*: R. Leckie, D.S.O., D.S.C., D.F.C., to Station H.Q., Bircham Newton, to command, 5.9.29. T. O'B. Hubbard, M.C., A.F.C., to H.Q., Iraq Command, for duty as Station Commander, 13.9.29. F. W. Stent, M.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 27.8.29.

*Squadron Leaders*: H. G. R. Malet, to No. 4 Flying Training Schl., Middle East, 13.9.29. F. Workman, M.C., to R.A.F. Depot, Middle East, 13.9.29. A. N. Gallehawk, A.F.C., to H.Q., R.A.F., Transjordan and Palestine, 7.9.29. W. H. Dolphin, to R.A.F. Depot, Uxbridge, 24.8.29. H. W. Woollett, D.S.O., M.C., to Station H.Q., Manston, 17.9.29.

*Flight Lieutenants*: A. H. Paull, to R.A.F. Depot, Uxbridge, 5.9.29. H. M. Whittle, to H.Q., R.A.F., Mediterranean, 1.9.29. R. Whitaker, M.B.E., to No. 3 Flying Training Schl., Grantham, 2.9.29. E. G. Hilton, D.F.C., A.F.C., to No. 216 Sqdn., Middle East, 14.9.29. E. Drudge, M.B.E., to H.Q., Iraq Command, 13.9.29. F. H. Williams, to No. 14 Sqdn., Palestine, 13.9.29. K. B. Lloyd, A.F.C., to No. 204, Sqdn., Mount Batten, 13.9.29. H. M. Mellor, to No. 3 Sqdn., Upavon, 13.9.29. C. P. Brown, D.F.C., to H.Q., Iraq Command, 28.8.29.

*Flying Officers*: N. A. West, to No. 4 Flying Training Schl., Middle East, 13.9.29. C. E. Galpin, to No. 4 Flying Training Schl., Middle East, 13.9.29. N. C. Odbert, to No. 208 Squadron, Middle East, 13.9.29. B. W. Figgins, to No. 208 Squadron, Middle East, 13.9.29. C. P. Parker, to R.A.F. Base, Gosport, 9.9.29. F. Townsend, to R.A.F. Depot, Uxbridge, 31.8.29. W. Anderson, to R.A.F. Practice Camp, North Coates Fitties, 13.9.29. R. L. Edward, to No. 2 Flying Training Schl., Digby, 2.9.29. E. L. Wilson, to Armament and Gunnery Sch., Eastchurch, 9.9.29. C. H. Hockly, to No. 6 Sqdn., Iraq, 2.9.29. F. G. Fairhead, to No. 6 Sqdn., Iraq, 19.8.29. S. R. Groom, to H.Q., Wessex Bombing Area, Andover, 12.9.29. R. A. Chignell, to Andover Communication Flight, 12.9.29. G. Wood, to R.A.F. Depot, Uxbridge, 16.9.29.

*Pilot Officers*: A. G. M. Cary, to No. 70 Sqdn., Iraq, 6.9.29. F. A. Wardell, to No. 70 Sqdn., Iraq, 6.9.29. R. V. Redpath, to R.A.F. Base, Gosport,

Pilot Officer on probation A. J. P. Groom is confirmed in rank (Aug. 15); Pilot Officer R. V. Redpath is promoted to rank of Flying Officer (Sept. 2); Pilot Officer H. J. Cross is promoted to rank of Flying Officer (Jan. 18) (substituted for Gazette, Aug. 20).

The follg. Flying Officers are transferred to Reserve, Class A:—E. C. G. Badcock (Sept. 20); H. C. Macphail (Sept. 22). Flying Officer C. H. G. Bremridge resigns his permanent commn. (Sept. 17); Pilot Officer on probation A. C. Baber resigns his short service commn. (Sept. 17); the short service commn. of Pilot Officer on probation A. R. Armstrong is terminated on cessation of duty (Sept. 21).

### Accountant Branch

Pilot Officer on probation H. A. Frost is confirmed in rank and promoted to rank of Flying Officer (Sept. 9).

### Chaplains Branch

The Rev. D. F. Blackburn is promoted to relative rank of Wing Commander (Aug. 16); the Rev. F. W. Hilborn relinquishes his short service commn. on transfer to the Army (Sept. 12).

### Legal Branch

Flight Lieut. G. S. Marshall, O.B.E., is granted acting rank of Squadron Leader, with pay and allowances at Class B.B. (Army) rates, whilst employed as Deputy Judge Advocate-General, Middle East Command (Aug. 9).

### Memoranda

The permission granted to Sec. Lt. A. B. Whiteley to retain his rank is withdrawn on his conviction by the Civil Power (July 10).

The permission granted to Lieut. E. W. Carmichael to retain his rank is withdrawn on his enlistment in Supplementary Reserve (Aug. 20).

## RESERVE OF AIR FORCE OFFICERS

### General Duties Branch

G. S. Ogilvie is granted a commn. in Class AA(ii) as a Pilot Officer on probation (Sept. 9). Flying Officer C. H. G. Bremridge is granted a commn. in this rank in Class C on resignation of his permanent commn. in R.A.F. (Sept. 17). The follg. Pilot Officers are promoted to the rank of Flying Officer:—W. E. Hampton, P. G. Philcox (Sept. 19); L. C. Williams (Sept. 20).

Flying Officer T. H. Finney is transferred from Class A to Class C (May 30). The follg. relinquish their commns. on completion of service:—Flight Lieut. C. F. Briggs (Sept. 20); Flying Officer C. H. Bird (Sept. 15); Pilot Officer V. P. Field (Sept. 7) substituted for Gazette (Sept. 10). Flying Officer G. G. Williams is removed from the Service (Sept. 11).

16.9.29. R. C. Jordan, to R.A.F. Base, Gosport, 9.9.29. J. C. Allan, to R.A.F. Base, Gosport, 9.9.29. A. L. Franks, to No. 14 Squadron, Palestine, 13.9.29. K. M. Cass, H. R. Clay, L. A. Cubitt, G. D. Dixon, G. D. W. Frayling, D. W. H. Heath, R. J. B. Hitchen-Kemp, H. de M. Middleton, R. J. Parkhouse, A. C. Richardson, J. B. Tatnall, H. Travis, and R. C. Noble, to No. 4 Flying Training Schl., Middle East, 14.9.29. E. G. Granville and G. F. P. O'Farrell, to No. 12 Sqdn., Andover, 2.9.29. R. I. Johnson and T. E. Whittome, to No. 100 Sqdn., Bicester, 2.9.29.

The following Pilot Officers are posted to the R.A.F. Depot, Uxbridge, on appointment to Short Service Commns. with effect from 13.9.29:—H. G. Adams, S. H. Bell, D. P. A. Boitel-Gill, J. C. L. Bruce, R. R. Chapman, L. E. Chiswell, G. B. S. Coleman, C. R. Davies, J. L. M. Davys, S. W. H. Egan, G. Egerton-Hine, T. N. Fraser, J. S. Hamilton, C. J. Hansford, J. N. Hepworth, L. M. Hooper, R. G. Hosken, N. C. Hyde, B. N. Matson, L. R. Mouatt, E. E. Noddings, R. C. Parker, K. N. Sayers, G. D. Seabourn, M. W. Simons, S. D. Slocum, J. A. MacD. Teacher, H. J. Ward, C. A. Washer, H. J. Wilson, and I. N. Roome.

### Stores Branch

*Flight Lieutenants*: A. B. Wiggan, to Supply and Transport Services, Iraq, 13.9.29. A. E. Sutton-Jones, to H.Q., R.A.F., Middle East, 13.9.29.

*Flying Officers*: R. M. Thomas, to R.A.F. Depot, Middle East, 13.9.29. M. J. Scott, to R.A.F. Depot, Middle East, 13.9.29. F. R. Lines, to Station H.Q., Hawkinge, 22.9.29.

### Accountant Branch

*Flight Lieutenant*: E. C. Green, to H.Q., Iraq Command, 13.9.29.

### Medical Branch

*Squadron Leader* G. H. H. Maxwell, M.B., to No. 3 Flying Training Schl., Grantham, 30.9.29.

*Flight Lieutenant* V. S. Ewing, M.B., to No. 1 Sch. of Tech. Training (Apprentices), 7.9.29.

*Flying Officers*: H. C. S. Pimblett, M.B., to H.Q., Iraq Command, 13.9.29. A. E. Vawser, to H.Q., Iraq Command, 13.9.29. R. E. Alderson, M.B., to Princess Mary's R.A.F. Hospital, Halton, 12.9.29.

### Chaplain's Branch

The Revd. W. R. Marsh, B.D., to R.A.F. Depot, Middle East, 13.9.29.

The engagement is announced between SQUADRON-LEADER THEODORE QUINTUS STUDD, D.F.C., R.A.F., son of Mr. and Mrs. E. F. Studd, of Exeleigh, Starcross, Devon, and ESTHER MARY, elder daughter of Mr. and Mrs. H. H. G. New, of Craddock, Cullompton, Devon.



## R.A.F. Prize Cadetship Awards

THE Air Ministry announces: The Air Council have awarded Prize Cadetships to the following successful candidates at the examination held in June last for entry into the Royal Air Force College, Cranwell:—W. E. Oulton (Technical College, Cardiff); University College of South Wales). P. G. A. Diack (Westminster School). P. E. Drew (Marlborough College). H. W. A. Chesterman (Marlborough College). A. C. Johnstone (Edinburgh Academy). E. C. Ingham (Eton College).

sharp, and tickets will be, as usual, 3s. 6d. each. Gentlemen friends will be cordially welcomed, and it is hoped that every effort will be made to make the evening as big a success as ever. Applications for tickets should be made (as early as possible, please!) to the Hon. Secretary, C. T. Hodges, 102, Camden Street, London, N.W.1.

## PERSONALS

### To be Married

The engagement is announced between FLIGHT-LIEUT. GERALD P. H. CARTER, R.A.F., Maidsmere, near Bromsgrove, Worcs., and ESTHER M. D. MACANDREW, daughter of the late Maj.-Gen. Sir Henry J. M. MacAndrew, K.C.B., D.S.O., and the late Mrs. MacAndrew, Aithorpe, Inverness.

The engagement is announced, and the marriage will shortly take place, between FLIGHT-LIEUT. D'ARCY GREIG, D.F.C., A.F.C., R.A.F., and LORNA ELAINE, only daughter of Mrs. DEAN and the late Rev. C. G. G. Dean, of Bexhill-on-Sea.

The engagement is announced between SQUADRON-LEADER JOHN A. SADLER, R.A.F., younger son of Geoffrey E. Sadler, of Abbots Langley, Herts., and REBECCA, daughter of Mrs. MANNERS and the late T. N. Manners, of Penzance, Cornwall.

## 28th Squadron (R.A.F.) Old Boys' Association

THE annual reunion of the 28th Squadron (R.A.F.) Old Boys' Association has been arranged for October 19, at the "White Horse," Holborn (near Holborn Tube station). Members will assemble at 6 p.m. for supper at 6.30 p.m.



## AIR POST STAMPS

By DOUGLAS ARMSTRONG

(Editor of "The Stamp Collector")

### Recent Records for Aero-Stamps

AMERICA, with its passion for modernity, even in its hobbies, has taken up the cult of the air post souvenir with even greater enthusiasm than in this country. The recent sale by auction, in Philadelphia, of one of the finest air post collections on the other side of the Atlantic, has created some new high records in the prices paid for air stamps and covers. Its owner, the late Major J. A. Steinmetz, was President of the Aero Club of Pennsylvania, and amongst the first to succumb to the fascination and romance of the winged missive. He had been collecting for, perhaps, a matter of 15 years, during which time he had acquired examples of practically all the best and most historic pieces, for which bids were received from all parts of the world.

### "Hawker" Fetches £200

The outstanding price at the Steinmetz sale was £200 (\$1,010) for a mint specimen of the famous "Hawker" air stamp of Newfoundland—more than double the figure realised by a similar copy in London only a few weeks previously. A similar stamp, on "flown cover," sold for £114 (\$570), whilst an "Alcock" cover carried on the first successful transatlantic flight, and autographed by the late Sir John Alcock, reached \$280 (roughly £50). On the other hand, a "Ross-Smith" England-Australia flight cover with the souvenir stamp issued by the Commonwealth Government, in honour of the event, fetched only \$300 (£60). Twenty-seven pounds (\$135) was bid for a letter despatched by Major Steinmetz himself to a correspondent in England, by the dirigible "R34" on its return voyage across the Atlantic. A card carried on the first British air mail flight between Blackpool and Southport, by Grahame-White, in August, 1910, sold for \$80 (£16).

### More Notable Prices

One of the 250 letters included in the "De Pinedo" air mail, from Newfoundland to Rome, in 1927, realised \$145 (£29), and the rare official air post stamp of Colombia (1919), on letter, £40 (\$200). As was to be expected, the early "Pioneer" air post covers of the U.S.A. associated with experimental flights under Post Office Department auspices, between 1911-18, evoked keen bidding. The highest price reached in this section was \$150 (£30) for the Boonville, Ind., cover of August 29, 1912, whilst the first U.S.A. flight at Garden City Estates, on September 23, 1911, sold for \$42.25, or just over £8.

All of which goes to show that collectors who foresaw the potentialities of air post collecting when the hobby was in its infancy, are now reaping the reward of their acumen.

### Australia's Air Stamp

The first Australian air post stamp is a strikingly handsome production, and has been hailed by collectors as the most artistic aero-vignette issued as yet. First used to frank letters despatched by the Adelaide-Perth air service on May 20, it bears a finely-engraved pastoral scene with a river and sheep in the foreground, a distant view of low-lying hills, and an aeroplane passing overhead. The original design, by Mr. R. A. Harrison, was subject to some modification by Mr. Harold Herbert, prior to reduction to postage stamp size, the engraving and printing being the work of the Commonwealth Stamp Printing Office at Melbourne. Its face value is 3d., and its colour a dark myrtle green.

### More Air Stamp Novelties

In connection with the Amsterdam-Java air post service instituted on July 25, three special stamps have been provided by the Dutch post office in a striking Impressionist design by Mr. J. Jongert, representing a large head of Mercury, wearing a winged helmet, and also introducing the emblematic Caduceus in denominations 1.50 gulden black, 4.50 gulden red, and 7.50 gulden green.

From Syria comes a new set of four values, overprinted with an aeroplane device in red or black, upon contemporary pictorial postage stamps for use in the Beyrouth-Marseilles air mail service embracing 50 centimes green, 1 piastre rose-carmine, 15 on 25 piastres blue, and 25 piastres blue. It is probable that these will be replaced by a definitive air post issue towards the end of the present year.

The current 35 and 40 centimes Swiss air post stamps appeared on July 1, in a new design by M. P. E. Vibert, depicting a winged letter flying over the Alps, each printed in two colours, viz., brown and red-brown for the 35-centimes, and yellow-green and blue for the 40 centimes.

## PUBLICATIONS RECEIVED

U.S. National Advisory Committee for Aeronautics Reports: No. 301. Full Scale Tests of Wood Propellers on a VE-7 Airplane in the Propeller Research Tunnel. By F. E. Weick. No. 303. An Investigation of the Use of Discharge Valves and an Intake Control for Improving the Performance of N.A.C.A. Roots Type Supercharger. By O. W. Schey and E. E. Wilson. No. 304. An Investigation of the Aerodynamic characteristics of an Airplane Equipped with Several Different Sets of Wings. By J. W. Crowley and M. W. Green. No. 307. The Pressure Distribution over the Horizontal and Vertical Tail Surfaces of the F6C-4 Pursuit Airplane in Violent Manœuvres. By R. V. Rhode. No. 309. Joint Report on Standardization Tests on N.P.L. R.A.F. 15 Airfoil Model. By W. S. Diehl. No. 310. Pressure Element of Constant Logarithmic Stiffness for Temperature Compensated Altimeter. By W. G. Brombacher and F. Cordero. No. 315. Aerodynamic Characteristics of Airfoils-VI. U.S. National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

Wings (The N.Z. Air Journal). Vol. I. No. 1. July 1, 1929. J. T. Crawford, Hauraki Road, Takapuna, Auckland, New Zealand. Price 1s.

Air Photography. Part 1. Organization and Training. Air Publication 1354. H.M. Stationery Office, Kingsway, London, W.C.2. Price 1s. 3d. net.

Anuario Guia de la Aeronautica, 1929. Albert A. Mortz, Malabia 3352, Buenos Aires, Argentina.

Report on Civil Aviation and Civil Government Air Operations for the Year 1928. Dominion of Canada. Department of National Defence, Ottawa, Canada. Price 25 cents.

Report on the Royal Air Force Promotion Examinations "B," "C," "E," and "F," held on February 26, 27, 28 and 29, 1929. H.M. Stationery Office, Kingsway, London, W.C.2. Price 1s. net.

Some Famous Air Achievements. D. Napier and Son, Ltd., Acton, London, W.3.

British Rainfall, 1928. Meteorological Office, Air Ministry. H.M. Stationery Office, Kingsway, London, W.C.2. Price 15s. net.

Deutschen Versuchsanstalt für Luftfahrt, Jahrbuch 1929 der E.V., Berlin-Adlershof. By Dr. Ing. W. Hoff. O.v. Dewitz and Dr. Ing. G. Madelung. R. Oldenbourg, Glückstrasse 8, Munich, Germany. Price M.42.

— — — — —

## AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

### APPLIED FOR IN 1928

Published September 26, 1929

- 20,677. G. G. PARNALL and D. R. POBJOV. Super-chargers for use with i.c. engines. (318,348.)  
20,678. G. G. PARNALL and D. R. POBJOV. Epicyclic gearing. (318,349.)  
30,698. DORNIER-METALLBAUTEN GES., and Dr. C. DORNIER. Floats. (303,877.)  
37,376. J. E. HESS. Helicopters. (318,451.)

Published October 3, 1929

- 15,803. R. C. BROWN. Rotary i.c. engines. (318,476.)  
20,368. E. D. WYNN. Safety-devices for aeroplanes. (318,707.)  
21,017. G. GARTMAN and E. BOLONDO. Servo-pump set operated by the suction of an i.c. engine. (300,191.)  
23,080. Sir W. G. ARMSTRONG WHITWORTH AIRCRAFT, LTD., and H. N. WYLIE. Landing wheels for aircraft. (318,726.)  
23,773. J. R. PORTER. Aeronautical machines. (318,732.)  
29,590. C. J. HANSEN-ELLEHAMMER. Aerial machines. (318,773.)

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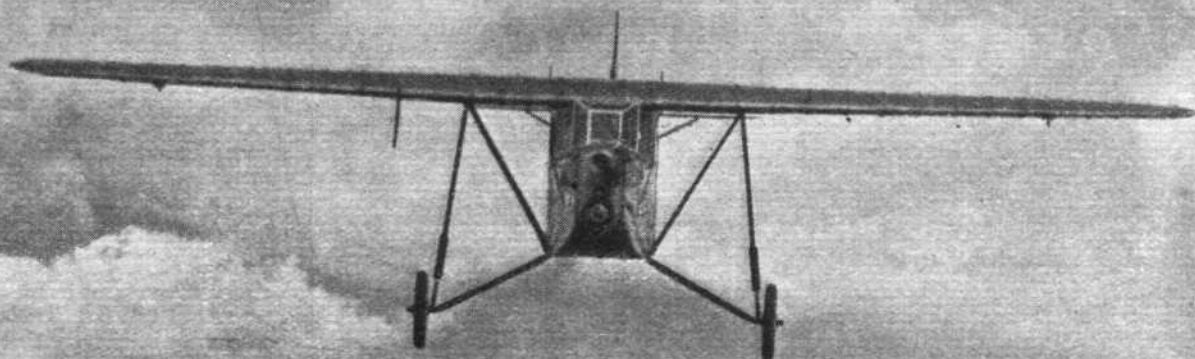
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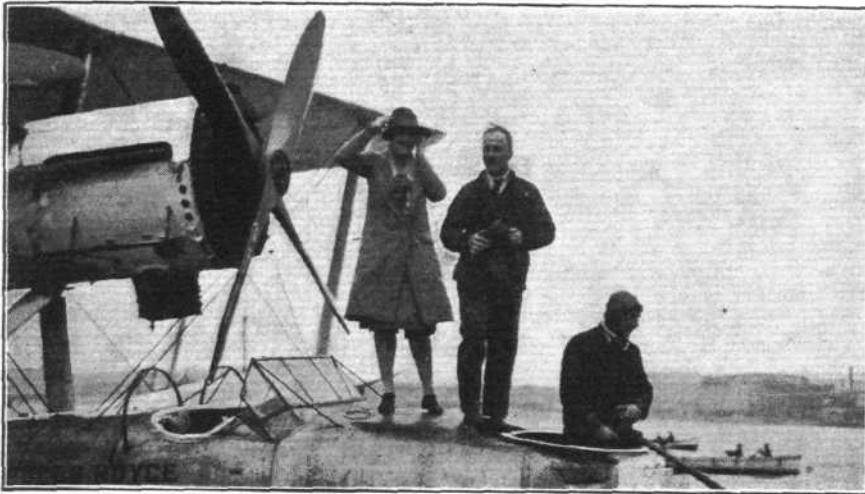
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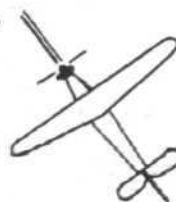
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